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ABSTRACT

The following papers from the National Association of State Scholarship and Grant Programs/National Council of Higher Education Loan Programs conference on student aid are provided: (1) "The Equity of Higher Education Subsidies" (John B. Lee); (2) "The Economics and Financing of Higher Education: The Tension between Quality and Equity" (W. Lee Hansen and Jacob O. Stampen); (3) "Inventory of Alternative Financing Methods for Higher Education" (Marilyn Sango-Jordan); (4) "Simulating a State Guaranteed Tuition Plan: New Jersey Proposal" (Lutz K. Berkner); (5) "Prospects for Supplemental Education Loans" (Ernest T. Freeman and Thomas D. Parker); (6) "Designing a Public-Private Partnership to Assist Students: A Case Study of the Lilly Endowment Educational Award Program" (William V. Hall); (7) "Working while Studying: Does It Matter?" (Gordon Van de Water and John Augenblick); (8) "Student Employment Patterns and the Role of Earnings in Financing the Cost of Attendance" (Gerald L. Setter and Craig V. Schoenecker); (9) "NPASA: The National Data Base for Postsecondary Student Financial Aid Studies" (Samuel S. Peng and Roslyn A. Korb); (10) "Summary of Report on Student Loan Defaults" (Art Hauptman and Pat Smith); (11) "Examining the Loan Burden Problem" (Laurent Ross); and (12) "Student Debt in Texas: Survey Results and Policy Implications" (Jeff J. Webster). An index of authors is provided. References are provided at the conclusion of individual papers. (KM)

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THE PROCEEDINGS

VOLUME II

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The Equity of Higher Education Subsidies

by

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June 1987

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Preface.

Special thanks needs to be given to a number of people who helped produce this report. Richard Chopper provided the programming support for the project and Gregory Shook was responsible for the production of the report. Both were patient and understanding of the many changes that were requested throughout the project.

The report was given careful review by Mike McPherson of Williams College, Charles Byce of The Brookings Institution, Richard Jerue of the American Association of State Colleges and Universities, and Juliane Still Thrift of the National Association of Independent Colleges and Universities, and Toby Milton of the Center's staff. Special thanks needs to be given to Frank Schmidtlein of the University of Maryland for giving me the opportunity to do this research. For all of their help and suggestions, responsibility for the final report remains with me.

THE EQUITY OF HIGHER EDUCATION SUBSIDIES

I. INTRODUCTION

Economists and policy makers have argued for years about whether this country is over or under investing in higher education (Schultz, 1972). Most of the discussions are based on very general estimates of what we as a nation are expending on higher education. The total figures used are aggregate estimates and do not differentiate among purposes to which the money is put nor do they trace the patterns of expenditure available to different types of students attending college. This results in part from the complicated nature of how colleges, and the students attending, are supported. Money flows to institutions from different levels of government and from private sources with various degrees of restrictions on how the money can be expended. A good deal of the money is spent for activities that are not directly related to the educational mission of the institution. Examples include the operation of hospitals, research institutes, dormitories, bookstores and cafeterias. In addition, many students receive direct assistance in the form of grants, subsidized loans and work programs (Brinkman, 1985).

The specific information developed in this report concerns the subsidy available to undergraduate students. The report examines the total amount of money available from all sources to students attending college. The analysis identifies what resources are available directly to students and how many dollars are available as a subsidy through the institution. The cumulative effects of the subsidies will be evaluated to determine the degree to which the funds are equitably distributed among students from different income groups, racial and ethnic background and ability levels.

Because the sources of higher education income are so diverse, it is difficult to determine in an individual case who provides the subsidy. In this paper no attempt is made to determine the source of the subsidy, only the amount. It is not possible to determine whether private, federal, local, or state dollars are expended for education because, given financial reporting procedures, institutional income cannot be linked directly to specific expenditures and students do not reliably report sources of student aid.

The most important factor in determining the amount of subsidy appears to be the institutional choice of the student. The decision to go to college obviously determines whether a subsidy is provided. This analysis is limited to those in college. Those who do not attend receive no subsidy. If the student decides to attend, the choice of where to go to college influences, in large part, the amount of subsidy that will be available. The amount that a college spends on undergraduate education depends on a number of considerations including the control, mission, location, and size. Once the student decides to go to a specific college, that choice, along with the student's financial situation, determines the amount of aid for which that student is eligible. In part, student decisions are limited by institutional admission requirements. Low ability students have fewer colleges from which to choose than do high ability students. The choice of institutions is also somewhat narrower for low income students than for high income students who can afford to pay the tuition and living cost at more expensive colleges. Student aid does not necessarily assure low income students equal choice of high cost colleges (Jackson, 1986).

For this analysis, an assumption is made that students do not distribute themselves randomly among colleges so subsidy patterns among different types of students will vary. The student characteristics included in this analysis are family income, race and ethnic group, and ability. Information is included as to whether they enrolled in a two-year public college, a four-year public college or a private college. This set of characteristics allows an examination of whether subsidies are equitably distributed, as well as helps in understanding some factors associated with the subsidy. There is no implicit assumption about how much subsidy is provided by different types of institutions. A private college with high tuition could spend more on student education and yet provide less subsidy than a public college with low tuition and a large state subsidy. The amount expended on education by the college includes the tuition paid by a student and is a different measure than the subsidy provided, which is the amount of money available for education from sources other than the student.

There are inter-relationships among the different student characteristics. For example, Blacks, Hispanics and Indians have lower incomes, as groups, than do Whites. Previous research indicates that ability is correlated to income, with high income associated with high ability. Also lower income students tend to enroll in lower tuition colleges (Lee, 1985). Very little is known about the patterns of subsidies available to students through the combination of institutional expenditure and student aid. This results, in part, from the lack of a common data set that allows both student finances and institutional finances to be investigated simultaneously. The longitudinal data on the high school graduating class of 1980, High School and Beyond (HS&B) and the Higher Education General Institutional Survey (HEGIS) are the sources for individual and institutional data used to develop estimates of subsidies available to students attending college. The information on student aid was taken from HS&B and institutional finance information was taken from HEGIS.

The central concern guiding this analysis is whether the average subsidies available to students are equitable. The first question to be investigated is whether student aid subsidies are progressive relative to student income. The second question will be to determine if institutional subsidies are neutral across income categories. It is expected that the combination of institutional and student subsidies will result in an overall subsidy that favors low income students. To the degree that minority groups have, on the average, lower income than majority students, minorities should receive more student aid, and the same level of institutional subsidy, as majority students. Because ability correlates with income, it is expected that low ability students will receive more student aid than high ability students. This is balanced by the probability that high ability students will be more likely to enroll in selective institutions which provide greater institutional subsidies. The final question to be investigated is whether subsidies will be greater for students in private colleges than for those in public colleges because high tuition would result in higher levels of student aid for students with equal ability to pay. It is assumed that the total subsidy available to students in public and private colleges will be the same, even though private colleges may spend more on education, when tuition is included in addition to the subsidy.

This is a limited study designed to determine if the subsidy concept is a useful one that can be used to help evaluate the overall effect of the complex, decentralized system that has evolved to finance higher education and students in this country. The results are tentative and suggest new problems and analyses that are needed if more time and money is available for the future research on this topic.

A. What is the Issue?

Postsecondary education includes the universe of accredited programs that lead to any certificate or degree. Higher education is comprised of those institutions that provide at least a two-year degree. In the HEGIS universe there are approximately 3,300 higher education institutions, that enroll 12.5 million students. This excludes many proprietary, nursing, public vocational colleges and other specialized institutions, along with the students they serve.

The total cost of the higher education enterprise in this country is estimated to be $100 billion a year. According to the 1985 edition of The Condition of Education published by the Center for Education Statistics (CES), state governments provide 44 percent of all funding for public four-year institutions and 50 percent for public two-year institutions but only two percent for all private institutions. The federal government provides 13 percent of the operating budget of all colleges and universities, mostly through contracts and grants.

Students provide about one-third of the income of higher education institutions through tuition payments. The federal government and, to a lesser degree, states provide subsidies directly to students in the form of grants and subsidized loans which do not appear as institutional support. Just under half the enrolled college students receive at least one form of student aid.

One of the analytic difficulties confronting this study is the problem of determining the cost of education as opposed to the more inclusive costs of operating institutions. The Center for Educational Statistics (CES) estimates that, in 1981, the total current fund expenditure per student, including all the above activities, was roughly $7,800 per student. The results of the current study indicates the total actually spent for "education" was closer to $4,600 per student.

Federal student aid totaled $18.9 billion in the same year. With a full time equivalent enrollment of nine million students, that results in just over $2,000 federal dollars per student. Much of this total expenditure is not classified as a federal subsidy. Approximately $8.4 billion is off-budget, including all student loans to be paid back and matching funds required from institutions by the various programs. If these off-budget totals are subtracted from student aid totals, the federal appropriation available is roughly $1,170 per student. In this study, the amount of subsidy reported per undergraduate student in the 1983-84 academic year was $1,038. This reflects differences from the Federal appropriation in the way subsidies were calculated for this study, which includes college work-study and uses different procedures to estimate the loan subsidy. Another difference is that this group does not include graduate students or proprietary school students who, on the average, receive more aid than undergraduates.

The total student aid provided by states was about $900 million in 1981 (NASSGP, 1987). Privately provided aid, which is the most difficult to estimate, probably provides at least an equal amount to students. The addition of these non-federal sources of aid raises the total aid available per student about 20 percent above the federal level.

Institutions receive income from private as well as public sources. Endowments, sales and services of educational activities, including hospitals and other sources, all provide institutional income. Some, but not all, of this income is spent for the direct costs of educating students.

B. Definitions and Limitations

1. Subsidy. The central concept in this analysis is that of education subsidy. Generally, subsidy represents the amount of money from all sources provided for a students education above and beyond the individual's or his family's contribution. Educational subsidy is defined, for purposes of this study, as the "education and general" (E & G) expenditure plus the grant aid and grant equivalent student aid (this concept will be defined later in this section) received by the student, minus tuition paid by the student. The definition used in this analysis does not include foregone taxes as a subsidy to individuals and institutions because the amount would have to be estimated in the most general way and would result in questionable conclusions. There also may be subsidies available to students through housing or food services on campus which are not taken into consideration in this study.

The E & G measure was taken from the HEGIS finance data and modified by excluding expenditures for research, scholarships and fellowships. These items were excluded because research expenditures do not bear directly on the educational experience of undergraduates, which is the population under examination in this study. Grants and scholarships were excluded because they are accounted for in the individual student record.

The tuition for a full-time (in-state for public colleges) undergraduate was subtracted from this total, resulting in the institutional subsidy available to the student. The tuition estimate was taken from the HEGIS file because it was considered a more reliable estimate than student reported tuitions.

There are three limitations to this measure of subsidy. First, the subsidy available to students in an institution will vary by level of enrollment; freshmen receive less subsidy than graduate students. Second, the subsidy will vary by type of program; engineering majors receive larger subsidies than sociology majors. Third, universities with large graduate enrollments spend more on graduate students than on undergraduates. The institutional average includes graduate students and, thus, is greater than the amount spent on undergraduates' education. Attempts to estimate the effects of these differences would introduce untested assumptions into the analysis. Therefore, a decision was made to use uncorrected institutional averages.

The E & G expenditure total excludes everything spent for all auxiliary enterprises, including hospitals, dormitories, cafeterias, book stores and other activities unrelated to the direct costs of providing education. The E & G expenditures used here includes expenditures for instruction, public service, academic support, student services, institutional support, operation and maintenance of plant, and transfers. This aggregate amount was divided by the total number of students enrolled to calculate a per student subsidy. The number of students was calculated on a head count basis because the HEGIS finance tape contains only the head count number and not a division into part- and full-time status. This obviously reduces the estimated institutional subsidy for community college students relative to students in the other sectors because of the large proportion of part-time enrollment in two-year institutions.

Calculation of the subsidy available to students through student aid also required some estimation. Student aid can take three forms: grants, subsidized loans and subsidized work. Grants are simple to calculate and are given full face value as a subsidy. Subsidized work is not included since a student must work for pay. Thus, a subsidized job is no different than any other job and from the student employee's perspective it is employment, not a subsidy.

Subsidized loans present the most complicated form of subsidy. Loans include an interest subsidy, much of which is realized in the future, as well as a requirement that the borrower repay the original principle and some interest costs. There are several loan programs with different subsidies. In order to estimate the current grant equivalency of the subsidy, the market value of an unsubsidized loan was assumed to be 12 percent annually. This is the loan that a student or his family would be forced to take if there was no subsidy loan program available. A student loan interest rate of zero percent was assumed while in college, and eight percent during repayment after leaving college. The difference between the market interest rate and the subsidized interest rate was calculated based on an assumption of two years in college and repayment over ten years. The future subsidies were discounted to a current or present value. This means that a future subsidy is not as valuable as a current subsidy and is discounted to reflect the time value of money. Under these arbitrary assumptions the present value of the grant equivalency of a loan was estimated to be roughly 30 percent of the face value of the loan. Obviously, this is an estimate and would change as interest rates changed, or as assumptions changed about the length of repayment. For example, assuming three years in college and 13 percent market interest rate results in a 37 percent of the face amount of the loan as a present value of the subsidy.

The type and source of loans and grants was not distinguished in the analysis. There is no attribution of the source of the loan or grant because it is not evident that students recognize the source of particular aid; only that they received the aid and the amount.

2. Institutional Expenditure. This is not a measure of subsidy but a measure of E & G expenditure without tuition being subtracted. This provides information on the amount of institutional money that is being expended for education. A high tuition college could provide relatively little institutional subsidy, but could expend a great deal on the education of undergraduate students. On the other hand, a low tuition college could provide a significant subsidy, but not expend very much on education. Information on this point will help in estimating the proportion of the educational expenditure that is provided as a subsidy.

3. Income. Another measure used in the analysis is income. The measure of income used was 1980 family reported income, when the students were high school seniors. The students were assigned this income for each of the years used in the analysis. No correction was made for changes in family income or dependency status in students later years. No modification was made for family size, single head of household, or other family circumstances which could affect a family's ability to pay for college. Given this opportunity for change in financial situation, the patterns among the income groups were found to be similar in the two years for which data are reported

4. Equity. For purposes of this analysis, equity was determined to exist if those from the lowest income group received the largest overall subsidy. Each increasingly higher income group should receive less subsidy if the system is equitable. This definition of equity is a very straightforward, if limited, measure of how much subsidy is received by students from families with different incomes. Part of the total subsidy may reflect institutional expenditures and part may come from direct aid to the student. The subsidy may be provided by federal, state or private sources.
The analysis does not include information on those who did not attend any college. Evidence has been consistent over the years that college attendance is related to income. The lower the family income, the less likely their children will attend college.

The choice of a four-year or a two-year college is also related to socio-economic standing. High SES students are more likely to enter a four-year institution when they attend college. Students with high ability are also more likely to attend a four-year college (Baily and Collins, 1977).

5. Ability. Ability was determined based on the composite ability measure used in HS&B. Individuals were assigned to quartiles based on their scores. The ability test was a one hour test including basic mathematics and language skills. Race and ethnic group definition also was taken from the HS&B tape.

C. Research Design and Methodology

Two data sources are used in this project. High School and Beyond (HS&B) is a longitudinal data set which follows a cohort of students who were high school seniors in 1980. The sample is weighted to reflect the universe of students in that cohort. The enrollment status of the group in this study is reported for the years 1980-81 and 1983-84. This corresponds roughly with the freshman and senior year in college for those students making standard progress toward a bachelor's degree, which most of the students in this sample did not do. All estimates of student subsidy were developed using HS&B data. The institutional records selected were for those campuses attended by students in the sample. The sample does not represent a cross section of all students. Obviously it excludes older students. The mix of institutions attended by members of the sample should represent a cross-section of all colleges in the universe. Because 18 year old students are mostly freshmen, the mix of institutions attended differs from those attended by all students in the 1983 sample. There was a decline in the proportion of students enrolled in the two-year schools and an increase in the proportion of students in the four-year schools. The use of data from two different years, each with their potential biases, provides us with more confidence in the results if both years indicate the same patterns of subsidy. A third year, 1981, was included in the initial data collection but because of several data problems has been excluded from the final report. Mainly, the problems had to do with records that were not useable because of missing data. The result was too few records to make useful comparisons with other year's data.

HS&B employed a two stage sample design. In the first stage, stratified disproportionate samples of schools were selected from public and private high schools with 12th grades in the 50 states and Washington, D.C.. In the second stage, simple random samples were taken of seniors attending high school who could finish school by the end of the summer.

The design provided for a sample of 1,122 high schools and 36 seniors and 36 sophomores per school. A total of 811 (72 percent) of the 1,122 eligible schools participated in the survey. There were 204 matched replacement schools which brought the total of participating schools to 1,015, or 90 percent of the target. Student questionnaires were completed by 28,240 (85 percent) of the eligible sampled seniors in the participating schools. In 1980 there were 6,020 (unweighted) useable records of students enrolled in college that were included in the analysis. In 1983 the unweighted number was 5,151 students enrolled. The single most important reason for excluding a record in this study was the lack of a match between the individual record and the institutional record. Only students that were reported to have enrolled in a college were used in the analysis of subsidy. There were an adequate number of records in each analytic category to support the simple comparison of means that were utilized in the study.

The data collected for each student includes family income, family socio-economic quartile, student ability quartile, student aid received and attendance status. Attendance status includes full- or part-time and the type of institution attended. Colleges are reported as two-year, four-year, public or private.

The records are used cross sectionally, that is they do not follow the same student through the several years. Different students make up the population in different years because some drop-out and others enroll. The mix of institutions changes by year. For example, there are fewer students enrolled in the two-year colleges in 1983 than in 1980. There was no correction for inflation in the report. All values are reported in current dollars. The two years used, 1980 and 1983, did reflect a period of inflation. The Consumer Price Index increased by 17 percent between the two time periods. To determine whether there had been a change in subsidy between the two time period, totals in 1983 would need to be deflated by 17 percent. The results (see appendix A for table) indicate that there was no significant difference in subsidies between the two years with the exception of the decline in the subsidies available to students in public four-year campuses between the two time periods.

The enrollment in 1983-84 represents 85.8 percent of the enrollment in 1980. That relatively small overall drop represents a great deal of internal change. Of 100 students enrolled in 1980-81, nearly 45 were no longer in college in 1983 while 30 students who were not enrolled in 1980-81 were enrolled at that later time.

The second source of data is the Higher Education General Information Survey (HEGIS). This data is collected from institutions each fall and includes information on enrollment, finances, faculty and staff and affiliation. Estimates of institutional expenditures, tuition and institutional subsidies were taken, or estimated, from HEGIS data.

Both HEGIS and HS&B identify an institution by its FICE code, which is an institutional identification number. This allows each student record to be assigned to the correct institution. This merging of records allowed a data base to be developed which included both the student aid subsidy and the average institutional subsidy. There were some records that could not be merged because of missing or incorrect FICE codes. The number of non-matches in 1983 and 1980 was between 18 and 29 percent of all records of enrolled students. The missing records appear to be randomly distributed among the different student categories so there is no reason to believe that a consistent bias was introduced in the results. Data are reported in tables for academic years 1980-1981 and 1983-84 and include any students enrolled in each of those years. Intermediate years were collected as a quality control check but they are not reported here in order to maintain simplicity. The years represent the first and third year out of high school. A student cannot be assigned to an academic year in college with the reported data. Students were defined as enrolled if they were full or part-time any time during the year. If a student changed colleges in the middle of the year, he or she was assigned to the first institution in which he or she was enrolled.

A number of student records were dropped because they contained insufficient data to support the analysis. Examples of missing data include the previously mentioned problem with non-matchable FICE code as well as other problems such as no family income, no reported race or ethnic group, or no ability measure. In some cases, such as student aid reports, it is difficult to determine if there is a missing responses or the student received no aid. Records were only dropped from the particular analysis which required the data, not from the overall study. There is the possibility that these missing records may have introduced some bias in the results.

Per student subsidies were calculated on a head count basis. There were two reasons for this. The first is that the HEGIS finance tape includes only headcount enrollment. Adjustments for the percentage of part-time students could have been made using the HEGIS enrollment tape but, because of project budget limitations, this was not done. The second reason is more complicated. Because the HS&B is a longitudinal tape a student may be full-time in one enrollment period and part-time or non-attending in a second enrollment period during the same year. It would be an arbitrary decision to declare these student full- or part-time so enrollment was calculated on a head count basis.

Procedurally, the above considerations mean that a student was identified as enrolled in college on the HS&B tape, regardless of whether they were part- or full-time. They were assigned to the appropriate college on the HEGIS tape. The actual student aid report by the student was identified and the average institutional expenditure for education was calculated for the head count enrollment reported by the institution.

An alternative would be to use the concept of full-time equivalent enrollment equating three part-time students to one full-time student. Doing this would increase the average estimated subsisdies available to all students. Roughly 42 percent of all students in college attend part-time; 29 percent in four year schools and 63 percent in community colleges (ACE, 1984). If the correction for part-time enrollments was made it would increase the overall subsidy by 38 percent with an increase of 24 percent for students in four year schools and 72 percent for community colleges. If these corrections were made the overall estimated subsidy would increase and the difference in the subsidies available to students at four- and two-year campuses would be more nearly the same but subsidies available to students in two-year schools would still be roughly $2,000 less than subsidies for students in four-year schools. (Table A-1 in Appendix A displays the estimated changes in subsidies by institutional type.)

II. RESULTS

The sequence of tables reporting results begins with a description of those students who did not attend college compared to those who did. This is followed by tables describing the subsidy available by income, race and ethnic group, and ability for those attending college. Next, a series of tables presents the subsidies available by institutional type and control. The section closes with a brief review of differences in subsidies between aided and non-aided students. The final section includes a discussion of the implcations of the study's findings.

A. Who Attends College?

According to the HS&B, roughly half the class of 1980 did not attend college in the first year out of high school. That proportion of non-attenders dropped to roughly 35 percent in the four year period following high school. The probability of attending college by income is shown in Table 1.

Table 1

Proportion of Students Attending College by Income

Income	Proportion of Group Attending College in 1980
< $7,000	38.3%
7-12,000	45.0
12-16,000	46.8
16-20,000	48.8
20-25,000	53.5
25-38,000	62.7
38,000+	67.3
Average for all Income Levels	49.8

The probability of going to college directly after high school is closely related to family income. Offspring of low income families are less likely to go to college than children in higher income families. Over 60 percent of the students from families with under $7,000 income did not attend any college in 1980-81. Less than 33 percent of those from families with income over $38,000 did not attend.

There also are differences in attendance among racial and ethnic groups (See Table 2).

Table 2

Proportion of Students Attending College by Racial and Ethnic Groups

Group	Proportion of Group Attending College in 1980
Hispanic	51.1%
Indian	34.2
Asian	66.3
Black	42.6
White	53.6
Average Proportion of All Races Attending	49.8

Table 2 indicates that Asians are more likely to go to college directly after high school than any other group. Whites are next, followed by Hispanics, Blacks and Indians. Nearly two-thirds of the Asian high school graduates attended college and only one-third of the Indians.

The next table presents the probability of students attending college by a composite measure of ability based on test scores. The students are organized into quartiles based on their scores.

Table 3

Proportion of Students Attending College by Ability

Ability Quartile	Proportion of Group Attending College in 1980
Lowest	27.7%
Second	46.4
Third	58.8
Highest	76.0
Average for All Ability Levels	49.8

There was a strong relationship between ability and the propensity to attend college in 1980. Less than 30 percent of those in the lowest ability quartile go to college compared to over 75 percent in the highest quartile.

This brief review of who tends to go to college confirms other historical data indicating that low income and low ability students are less likely to attend college than are other groups. Analysis by race and ethnic group also confirms prior data showing that Indians and Blacks are less likely to go to college, but Hispanics and Asians are more likely to go to college, than the average. Attendance rates for Whites are close to the mean because they include the preponderance of cases.

The subsidies available to college students are not utilized by individuals electing not to attend. This report does not include high school dropouts, which would probably exacerbate some of the differences noted here. The same factors that account for college attendance are also related to dropping out of high school.

The results confirm previous findings that college attendance is more likely for the wealthy and academically able. Attending students receive a subsidy which is not available to those not attending. This has not been defined as inequitable as the term is used in this study. For whatever reason, there are some people that do not have an interest in higher education or participate in other activities by preference. The propensity to attend college is related to income and ability which are correlated. A good deal of higher education policy over the last several decades has been aimed at changing this fact. The data from other research (Lee, 1984) make the point that not much progress has been made toward the goal of equalized rates of attendance among income groups and, in the largest sense, this can be defined as inequitable.

B. Who Receives a Subsidy by Income?

For those attending college, the issue is how much subsidy is available to students with different characteristics. Table 4 presents the subsidies available for 1980 and 1983 by different income categories. This is the total subsidy available to students through the sum of institutional subsidies and those available directly to the student. There has been no correction for inflation in this report. The two years reflect different students attending different schools. The family income reported in 1980 is used for students in both the years, again there has been no correction for inflation. The important point made in these tables is the relative difference within a year, not the differences between the two years or the absolute values presented.

Table 4

Total Subsidy Available by Income

Income	1980	1983
< $7,000	$3,812*	$4,344*
7-12,000	3,727*	4,342*
12-16,000	3,524	4,102*
16-20,000	3,493	3,917
20-25,000	3,282	3,959
25-38,000	3,131*	3,796*
38,000+	3,328	4,037
Average for all Income Levels	$3,429	$3,980

*Significantly different from the overall mean (05. level of confidence)

Generally, students from families having under $16,000 income receive a subsidy greater than average while those in the higher income range receive less overall subsidy in both years. There is slightly less variation in the range in 1983 compared to 1980. The distribution of the subsidy is generally equitable, but the differences are not very great.

The next table presents the distribution of the subsidy available to students in the form of aid. This aid is from all federal, state, and private sources. As indicated earlier, 30 percent of the face value of loans are estimated to be equivalent to a grant.

Table 5

Student Aid by Income

Income	1980	1983
<$ 7,000	$1,477	$1,262
7-12,000	1,486*	1,386*
12-16,000	1,123*	1,187*
16-20,000	1,237	1,159*
20-25,000	1,066	1,126*
25-38,000	901*	866*
38,000+	733*	795*
Average for all Income Levels	$1,080	$1,037

*Significantly different from the mean (.05 level of confidence)

The student subsidy is related to income with the lowest income students receiving roughly twice as much as the highest income students in each of the two years. The one probable reason why student aid declines in 1983 relative to 1980 is because of changes in policy which restricted the eligibility of students for aid from the more liberal Middle Income Student Assistance Act rules that were in effect in 1980. In 1983 fewer students reported receiving aid, but those who did receive aid had larger average award packages. Further work needs to be done to determine if the difference can be accounted for by missing data.

Table 6 presents the average amount of money spent on education by institutions and the average tuition paid for each of the income categories. The amount expended includes the tuition paid by the student as well as the subsidy. Subtracting tuition from expenditures yields the institutional subsidy. The table contains three columns of numbers for each of the years. The first column (A) shows the average amount per student that institutions spent on education, including the tuition income paid by students, so it does not constitute the subsidy. The second column (B) is the average tuition paid by students in each of the income levels. The third column (C) is the institutional subsidy, the amount of subsidy available to students from institutions. Institutional subsidy and the subsidy received directly by students are additive to produce total subsidy. The actual totals will not sum exactly because of missing values in the different categories.

Table 6

Institutional Expenditures for Education by Income

Income	1980			1983		
	A Total Expended	B Tuition	C Inst. Subsidy[1]	A Total Expended	B Tuition	C Inst. Subsidy[1]
< $7,000	$3,466	$1,099	$2,367	$4,467	$1,405	$3,062
7-12,000	3,311*	1,057	2,254	4,266*	1,325	2,941
12-16,000	3,399	1,009	2,390	4,251*	1,359	2,892
16-20,000	3,467	1,158	2,309	4,283*	1,526	2,757
20-25,000	3,498	1,237	2,261	4,532	1,708	2,824
25-38,000	3,473	1,178	2,295	4,567	1,667	2,900
38,000+	4,267*	1,718	2,544	5,596*	2,409	3,187
Average	$3,552	$1,217	$2,335	$4,597	$1,676	$2,921

*Significantly different from the mean (.05 level of confidence)

[1] This figure is derived and thus its significance cannot be calculated.

The amount spent on education tends to be greater in both years for the higher income groups as compared to the lower income groups. The total expended rises slightly more rapidly than tuitions as income increases, resulting in a slight advantage in institutional subsidy for the very highest income group. The subsidy for the remaining groups shows no pattern. As will be indicated in a later section, community colleges provide less subsidy to students than four-year colleges.

C. Who Receives a Subsidy by Racial and Ethnic Group?

A good deal of attention has been given to the lagging college attendance rate of minorities in this country. The preliminary data reported earlier indicates the problem is better defined as a problem for Blacks, Indians and, to a lesser extent, Hispanics. This section describes the subsidies utilized by these groups after they enroll in college.

The minority groups are self identified on the HS&B. Hispanic is a composite group comprised of Puerto Ricans, Cubans, Mexicans and others. Other research has indicated divergent college attendance rates for different Hispanic groups (Lee, 1985). This sample was too small to allow separate analysis of these sub-groups. The small number of Indians in the sample results in greater variations in their statistics compared to those of other groups.

Table 7 indicates that, in terms of total subsidy, Asians and Blacks receive the largest subsidies and Indians and Hispanics receive the least.

Table 7

Total Subsidy by Race and Ethnic Group

Group	1980	1983
Hispanic	$3,157*	$3,610*
Indian	3,060	3,667
Asian	4,393*	4,782*
Black	3,810*	4,493*
White	3,221*	3,839*
Average for all groups	3,391	3,980

*Significantly different from mean (.05 level of confidence)

Blacks receive the largest amount of student subsidy relative to the other groups. There is only a $400 range between the highest and lowest subsidy, which went to Hispanics. The fact that Hispanics receive a relatively low institutional subsidy, and a low student subsidy, probably reflects the fact that a relatively large proportion of Hispanics are enrolled in community colleges. Further research would be necessary to determine the relationship between type of institutions attended by different social and ethnic groups. Table 8 presents information on the student subsidy available to the groups in both years.

Table 8

Student Subsidy by Racial and Ethnic Groups

Group	1980	1983
Hispanic	$922*	$880*
Indian	1,129	836
Asian	1,083	962
Black	1,328*	1,188*
White	1,039	1,048
Average for all groups	1,080	1,037

*Significantly different from the mean (.05 level of confidence)

Table 9 presents information on institutional expenditures and subsidies available to the different social and ethnic groups. Consistent with the two previous tables, Asians receive the largest institutional expenditure (A) and Hispanics and Indians the least. Blacks receive higher than average institutional expenditure in both of the years.

The pattern changes slightly when institutional subsidies are considered (C) but Asians still do best followed by Blacks. Because Hispanics and Indians pay a lower tuition (B), their institutional subsidy (C) is more nearly comparable with that of whites.

Table 9

Institutional Expenditure by Racial and Ethnic Group

Group	1980			1983		
	A Inst. Expend.	B Tuition	C Inst. Subsidy[1]	A Inst. Expend.	B Tuition	C Inst. Subsidy[1]
Hispanics	$3,144*	$ 906	$2,238	$3,881*	$1,144	$2,737
Indians	2,901*	968	1,933	3,941	1,108	2,833
Asians	4,752*	1,266	3,486	5,585*	1,748	3,837
Black	3,723*	1,196	2,527	4,831*	1,553	3,278
White	3,554	1,360	2,194	4,695	1,938	2,757
Average	$3,552	$1,217	$2,335	$4,597	$1,676	$2,921

*Significantly different from the mean (.05 level of confidence)

[1] This figure is derived and thus its significance cannot be calculated.

D. Who Receives a Subsidy by Ability?

Ability is a composite measure based on achievement tests administered to all seniors in the high school sample. Ability has the strongest relationship to subsidy compared to the two other measures of income and race and ethnic group. The highest ability quartile students receive the largest subsidy on all three of the subsidy measures across both years. The relationship between the other three quartiles is not as marked but there is very nearly a perfect ranked relationship between subsidy and ability. The lower ability students receive the least amount of subsidy on all three measures. Table 10 describes the total subsidy available to students by ability quartile.

Table 10

Total Subsidy By Ability

Ability Quartile	1980	1983
Lowest	$2,676*	$3,225*
Second	2,974*	3,492*
Third	3,235*	3,719*
Highest	4,260*	4,836*
Average for all groups	$3,391	$3,980

*Significantly different from the mean (.05 level of confidence)

The increase in the subsidy between the third and highest quartile is the most marked. Not only are high ability students more likely to go to college, but they receive much more subsidy when they attend.

The advantage for high ability students is consistent in the other measures. There is a close relationship between ability and student subsidy. The higher the ability measure, the greater the subsidy. Perhaps most surprising is the outcome for student subsidy. Given that the majority of aid is needs tested and not awarded on the basis of ability, it is surprising that there is such a significant increase in the amount of aid received by students in the top ability quartile relative to the other groups. One possible explanation is that high ability students are more likely to attend higher cost colleges and are thus eligible for more student aid. Table 11 provides the distribution of student subsidy by ability.

Table 11

Student Subsidy by Ability

Ability Quartile	1980	1983
Lowest	$ 684*	$ 658*
Second	840*	822*
Third	985*	902*
Highest	1,575*	1,468*
Average	$1,080	$1,037

*Significantly different from average at .05 level of confidence

The final table in this series on ability reflects the total institutional expenditure and subsidy available to students by ability. It confirms the results of the preceding two tables.

Table 12

Institutional Expenditure by Ability

Ability Quartile	1980			1983		
	A Inst. Expend.	B Tuition	C Inst. Subsidy[1]	A Inst. Expend.	B Tuition	C Inst. Subsidy[1]
Lowest	$2,702*	$ 713	$1,989	$3,402*	$ 840	$2,562
Second	3,052*	919	2,133	3,899*	1,243	2,656
Third	3,397	1,151	2,246	4,327*	1,555	2,772
Highest	4,531*	1,770	2,761	5,577*	2,450	3,327
Average	3,352	1,217	2,135	4,597	1,676	2,921

*Significantly different from average (.05 level of confidence)

[1] Significance tests could not be performed for institutional subsidy because institutional subsidy is a derived number.

Expenditure, tuition and institutional subsidy are all closely related to ability. As ability increases so does the value of all three of these measures. The relationship is clear and unambiguous. The most notable increase is the one between the third and highest quartiles. Neither income nor race and ethnic group has as strong a relationship to subsidy as does ability.

E. Subsidy by Institutional Type and Control

Table 13 compares four-year private, four-year public and two-year public students in terms of the total subsidy received (A), the student subsidy received (B), the amount the institutions expend on their education (including tuition) (C), Tuition (D) and, finally, the institutional subsidy (E).

Table 13

Subsidy by Institutional Type and Control

1980

Type	A Total Subsidy	B Student Subsidy	C Inst. Expend.	D Tuition	E Inst. Subsidy
Pri. four	$4,587	$2,376	$5,627	$3,416	$2,211
Pub. four	4,517	1,205	4,241	929	3,312
Pub. two	1,996	543	1,844	391	1,453

1983

Type	Total Subsidy	Student Subsidy	Inst. Expend.	Tuition	Inst. Subsidy
Pri. four	$5,605	$2,707	$7,292	$4,394	$2,898
Pub. four	5,069	1,226	5,073	1,230	3,843
Pub. two	2,394	538	2,448	584	1,856

Subsidies received by students in public and private four-year colleges (A) remained roughly the same in 1983 with a slight but statistically significant ($536) advantage to students in private colleges. Private college students receive more than twice the student subsidy (B) received by public college students but pay more than 3.5 times as much tuition (D). Even though the subsidies are nearly equal for public and private college students, the amount spent on the education (C) of private college students is nearly 44 percent greater. The variance around the mean for institutional subsidies (E) is much greater for private than public colleges (this variance is not reported in the table). Students in public colleges receive nearly $1,000 more institutional subsidy than students in private colleges (E). There is a balancing of sorts with private college students receiving more student aid and public college students receiving more institutional aid. The resulting overall subsidy available to students is very nearly equal.

Community college students receive less than half the subsidy available to students in four-year colleges. Neither the student subsidy (B) nor the institutional subsidy (E) is near the magnitude of that for the senior institutions in either year. As indicated earlier, data problems may result in a substantial underestimate of community college subsidies because of the high percentage of part-time students attending these institutions (Appendix A contains a calculation for correction).

F. Differences Between Aided and Non-Aided Students

In both 1980 and 1983 students who received student aid attended colleges with higher tuition. The higher cost colleges, in turn, tended to spend more money on students' education. It is not possible to determine causality from these differences. Students could go to higher tuition colleges because they get aid or they got aid because they went to colleges with higher tuition.

Table 14 details some of the differences between aided and non-aided students in 1980 and 1983.

Table 14

Differences Between Aided and All Students

	1980		1983	
	Aided	All Students	Aided	All Students
Inst. Exp.	$3,957	$3,552*	$5,420	$4,597*
Tuition	1,421	1,217	2,141	1,676*
Subsidy	4,509	3,391*	5,953	3,980*
Stud. Sub.	2,060	1,080*	2,722	1,037*

*Significantly different at .05 level of confidence)

As would be expected, the subsidy levels were higher in both years for aided students. In 1983 fewer students reported receiving aid, but those that received aid had larger amounts. In 1980 46.7 percent of the students reported receiving some aid and in 1983 that percentage had dropped to 34.0 percent. This reflects the greater proportion of the cohort attending college part-time in 1983 compared to 1980 and changes in federal student aid policy which restricted eligibility in 1983.

III. REVIEW AND CONCLUSIONS

The propositions set forth at the beginning of this study were confirmed in some cases and not others. In general, total subsidies are equitably distributed. Lower income students generally receive more support than students from higher income families. That was true both in 1980 and 1983. In 1980 the subsidy was roughly $3,400, with the income group receiving the least subsidy receiving about $3,300 and the group getting the most about $3,800. The range was only $550 between the different income groups in 1983 with the lowest subsidy group receiving about $3,900 and the highest $4,350. The overall subsidy differences were not very great but they were in the expected direction.

The estimated student subsidy is also equitably distributed. Low income students received the largest student subsidy, getting about twice the amount of direct support received by the highest income students.

Institutional expenditures for education, which includes tuition, are related to income. Students from higher income families tend to have more spent on their education than is spent on educating students from lower income families. Higher income students pay more tuition but receive an institutional subsidy nearly equal as to that received by lower income students, with only a slight advantage to the very highest income group. Students from the highest income group pay the highest tuition and receive the largest institutional subsidy.

The second proposition suggested that minorities would receive a greater subsidy than Whites because generally they come from lower income families. This was only partially supported. Asians and Blacks received the greatest overall subsidy in both years while Hispanics and Indians received the least. Blacks receive more student aid than any other group followed by Whites. The Hispanics and Indians received less than average. This difference may reflect the higher probability of Hispanics going to two-year public colleges and qualifying for less aid than Blacks who are more likely to attend private colleges than Hispanics. Further work needs to be done to confirm this assumption. Differences in the income characteristics of different racial and ethnic groups could also influence the results.

The explanation of subsidy differences among ethnic groups, resulting in part from attendance in different institutions, is supported by the fact that institutional expenditures are lower for Hispanics and Indians while they are higher for Blacks and Asians. Asians attend colleges that spend significantly more on education than other racial and ethnic groups, Blacks are a distant second. There is only partial support for the proposition that minorities receive a greater subsidy than whites.

The next proposition suggested that because low ability students are poorer they would garner more student aid. This assumption was emphatically rejected. The strongest factor related to both measures of subsidy and educational expenditure was high ability. The top ability quartile students receive significantly greater subsidy than any of the other quartiles. Even the utilization of student aid, most of which is need tested, is greater for high ability students than low ability students. This may be the result of the type of college attended and the active pursuit of student aid by these students. Measures of institutional expenditure, tuition and institutional subsidy all increase with ability. The fact that high ability students are less likely to attend two-year public colleges than lower ability groups, raises subsidies significantly for that upper ability quartile. The pattern of subsidies among the three types of institutions suggest that students attending four-year colleges receive roughly the same total subsidy regardless of whether they attend a public or private college. Students in private colleges receive more student subsidy while those in public colleges receive a greater subsidy directly from the institution. When tuitions are included, private colleges expend more on education than do public four-year colleges.

There is a propensity for students that are receiving aid to attend colleges with higher tuitions. Such institutions make larger expenditures for student education. It is not possible to imply causality one way or the other to this fact. Aided students may attend more expensive colleges or students attending more expensive colleges may receive more aid.

Overall, it is evident that the diverse funding system for higher education results in different subsidies being available to different groups of students. The subsidy patterns suggested in this report are remarkable for their differences as well as similarities. The differences in subsidies among ability groups and the racial and ethnic groups are striking. The similarity in subsidies available to different income groups and students attending public and private four-year colleges is an equally interesting finding.

This pattern of subsidies reflects, in part, conscious policy decisions combined with millions of student choices each year. The results suggest that the single most important decision that determines overall subsidy is whether some one attends a four-year or a two-year college. Students attending a lower cost two-year college receive a lower institutional subsidy and a lower student subsidy. However, this difference, as noted, is exaggerated because the data were not adjust to take into consideration the distribution of part-time students (see Appendix A).

The fact that ability is so closely related to subsidy suggests that choice of institution may be more closely related to ability than income. That choice in turn predicts the subsidy available to students.

The results of this study should be interpreted as a first effort to examine this complex issue. The results suggest that there are different amounts of subsidy available to students attending college depending on their circumstances. The necessary compromises forced on the study by data limitations and definitional assumptions distort the final results somewhat. It is highly probable that the results underestimate the subsidies of students in community colleges and overestimate those for students in universities with large graduate programs. The quality of data always constrains making more than tentative generalizations. Missing values and unmatched records both play a role in limiting the amount of usable data in the study. Since this study started, improvements in the data have been introduced but too late for inclusion here. The High School and Beyond data set is not perfect for this study because it only contains students in a particular age range.

Taking all of these limitations into consideration, the results have enough consistency and face validity to suggest that they reflect an underlying reality. The results suggest some further research that could be done to confirm the results and answer more questions. It would be helpful to know something about the interaction of the different variables. For example, knowing the combined effect of income and ability on subsidy, or the relationship of type and control of institution to ability, would be helpful in developing a fuller understanding about variations in subsidy available to students with different characteristics. These would help answer some questions raised by the preliminary study and improve our understanding of what subsidy students are receiving for a college education.

APPENDIX A

Estimated effects of using full-time equivalent enrollment, instead of head count enrollment, in estimating total subsidy would result in calculations of: (1) overall subsidies increasing by 38 percent, (2) subsidies for students in four-year schools increasing by 24 percent and (3) subsidies for students in two-year schools increasing by 72 percent.

Table A-1

Estimated Changes in Total Subsidies Comparing FTE and Head Count Enrollment

	1980		1983	
Inst. Type	Head Count	FTE	Head Count	FTE
Private 4 Yr.	$4,587	$5,688	$5,605	$6,950
Public 4 Yr.	4,517	5,601	5,069	6,286
Public 2 Yr.	1,996	3,433	2,394	4,118
Average	3,391	4,680	3,980	5,492

TABLE A-2

1983 Total Subsidies Deflated to 1980 Prices

Inst. Type	1980	1983 Deflated to 1980
Private 4 Yr.	$5,688	$5,769
Public 4 Yr.	5,601	5,217
Public 2 Yr.	3,433	3,418
Average	4,680	4,558

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ABSTRACT

TITLE: THE ECONOMICS AND FINANCING OF HIGHER EDUCATION:
THE TENSION BETWEEN QUALITY AND EQUITY
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This paper reviews the changes over the past 40 years in the social and economic environment affecting higher education finance, focusing particulary on the related emphasis given to quality and equity. Its empirical work compares changes in instructional-related costs, as a reflection of a concern relative about quality, with the net share of the these costs paid by students, (tuition and fees less total student aid), as a reflection of equity. The evidence indicates a pendulum like movement with a sharp shift from equity to quality concerns in the 1980s.

April 29, 1987

Economics and Financing of Higher Education: The Tension Between Quality and Equity

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Introduction

This paper examines the social and economic changes since World War II affecting the allocation and distribution of resources to higher education. The massive expansion of higher education enrollments and the expanded missions of higher education institutions that began in the late 1950s and continued through most of the 1960s not only required but also stimulated a substantial increase in resources allocated to higher education.[1] However, the past fifteen years have been markedly different. Resources available to educational institutions have been relatively less abundant and aspirations have been scaled back, but meanwhile the demands on institutions have increased.[2] How higher education will respond in the face of tightened resources remains unclear. To provide some insight into this conflict, we examine how and why the level and allocation of resources shifted over the past 40 years.

One apparent explanation for the shift in resources is the significant change in the goals of higher education that have occurred. Over the past two decades there has been substantially increased attention towards promoting wider access with less attention to developing high quality educational programs. These changes stem from a heightened concern with social justice, a concern that has always received strong support from higher education. As a result, the character of higher education by the end of the 1970s seemed to have been substantially and permanently altered, with its focus on access, choice, and persistence.

It now appears that this conclusion was premature. Since 1980-81 we have experienced another dramatic change, evidenced by renewed public concern over quality and related calls for higher standards than those that prevailed over the preceding decade. As a result, higher education is making a strong bid to tighten academic standards, to improve its educational programs, to use its resources more effectively, and to judiciously respond to a wider array of social demands. Partly as a result of these developments higher education institutions have recently embarked on a major effort, particularly at the state and local level, to increase the resources invested in higher education.

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We try here to put these developments in perspective by gleaning from recent history the lessons we can learn about the effects of changes in the political-social-economic environment on higher education. Our exploration of these changes focuses on national data on higher education revenues and expenditures. Our purpose is to gain insight into shifts in the level and distribution of resources for higher education. Our hope is that a better understanding of the interplay among the various forces affecting the economic vitality of higher education institutions will help faculty, administrators, and also public policymakers improve the quality and performance of higher education institutions.

We structure this analysis around a series of questions concerning higher education expenditures which reflect society's investment in higher education. We then set out criteria that can be used to link new social mandates for change in higher education with the expenditure data. The central focus of our analysis is to create a framework of time periods that highlight the major forces affecting postsecondary education since World War II. Based on this framework, we proceed to examine the changing patterns of investment in higher education, shifts in the allocation of expenditures, and what these developments mean for who pays the costs of higher education.

The principal questions that guided our analysis are as follows:

1) How did the various social-political mandates from the past forty years influence societal spending, or investment, in higher education?
2) What were the key events affecting investment in higher education during this forty year time span?
3) What were the trends in overall expenditures for instruction, for tuition and fee charges, and for student financial aid?
4) How did changes affect the sharing of the costs of higher education and the ability of students and their families to finance college attendance?

The data available to address these questions are less than ideal. Routinely gathered federal statistics on higher education have been redefined frequently, thereby making it difficult to consistently document financial trends and changes in higher education activities. Public opinion polls that might capture prevailing views about higher education are sporadic and usually rather vague in the information they elicit. Existing studies and research reports pursue a variety of questions that bear only tangentially on our topic. For these reasons the variables selected for observation are necessarily broad and represent a synthesis not entirely free of our own judgments. Nonetheless, the general patterns that emerge offer explanations of changes in higher education that are pertinent to the current policy debate on higher education finance.

Dating the Periods of Analysis

The higher education sector has been buffeted by a variety of unprecedented forces over the past four decades. Perhaps the most noticeable force was demography. The enrollment surge after World War II resulting from the GI Bill was followed by relatively stable enrollment until the late 1950s. After a gradual enrollment increase into the early 1960s, an explosion of enrollments occurred as the baby-boom population reached maturity. This enrollment surge continued through the 1970s, but at a somewhat slower pace. Since 1980 overall enrollment growth has slowed considerably.

Another key factor has been the efforts of the higher education sector to chart its own course, as reflected in a long series of reports that articulate its goals and aspirations. Still another force has been that of economists and other social scientists who periodically introduce new concepts, provide fresh insights, and offer novel proposals that stir the air and stimulate thinking about the economics and financing of higher education. Last but not least, political forces always loom large and are revealed most immediately in governmental actions; ultimately, however, these actions reflect an even more powerful force, namely, the changing priorities of the citizenry who determine the focus of political action and the availability of resources for higher education.

To facilitate our analysis we define five distinct time periods. The first embraces the years between 1947-48 and 1957-58, a period of readjustment following World War II, that began with the GI Bill and concluded with the emergence of higher education as a major factor in the development of American society. The second period, 1957-58 to 1967-68, reflects the enormous expansion of the higher education sector and its emphasis, spurred by concern that American technology was falling behind the Soviets, on that elusive dimension of quality. The next period, 1967-68 to 1972-73, reflects the search for ways of broadening opportunities for students to attend college beyond those initiated by the federal student loan programs in 1965. This search culminated with the federal decision in 1972 to establish a national need-based student aid system of Basic Educational Opportunity Grants, later renamed Pell grants. The next period, 1972-73 to 1980-81, can best be described as a time for consolidating the financial system and resolving equity problems. The last and most recent period, 1980-81 to 1984-85, reflects a sharp swing in the opposite direction, with concerns about quality, efficient use of resources, and broadened missions rising to the fore once again.

These forces and their changing direction over the past four decades reflect the well-known pendulum effect in social and political affairs.[3] Special concerns about equity that had led to passage of the GI Bill in 1944 were followed by concern with quality in the late 1950s and early 1960s. The concern for quality was followed by the ascendancy of interest in equity and opportunity in the late 1960s and 1970s. By the early 1980s these forces had run their course, and there was a reversion to concerns about quality and effectiveness.

We begin by outlining the major forces operating in each of the five periods.

1946-47 to 1957-58--Post World War II Readjustment

This period can best be described as one of readjustment from the Great Depression and World War II. It began with a rapid increase in enrollments occasioned by returning veterans who resumed or began their college training with the help of the GI Bill. Despite the declining size of the college age population in the early 1950s, resulting from falling births in the 1930s, enrollments held up reasonably well as a consequence of the flow of GI-Bill supported Korean War veterans into college.

Aside from changes on college campuses brought about by the returning veterans, this period was rather uneventful. The social and economic pressures on the higher education sector were minimal. The resources provided, while not substantial by current standards, matched public expectations that access to higher education should be limited to a modest percentage of high school graduates. The one noteworthy report of the period came from the 1947 Truman Commission on Higher Education[4] (otherwise known as the Zook Commission) which suggested that after the veterans completed their schooling larger proportions of the civilian population should be educated. The Commission estimated that half of all high school graduates could benefit from higher education. It called for removing the financial barriers to college attendance by providing loans, grants, and work-study opportunities based on financial need.[5]

The period marked the ascendence of higher education to a new level of prominence in American society. Colleges and universities had been instrumental in easing the transition from a wartime to a peacetime economy; many young people who might not have had a chance to attend college could do so; and colleges and universities were able to expand and develop. Knowledge of the important contributions of academe during World War II led to society's increased reliance on it, and people came to believe that colleges and universities could be instrumental in resolving other national problems. Meanwhile, many higher education leaders proved to be persuasive spokesmen for education and exercised leadership on national policy issues that went far beyond higher education.

1957-58 to 1967-68--Expansion and Quality

This period can be described as one of enormous expansion and a strong emphasis on quality. The most important element was demographic, with the number of young people reaching age 18 rising from 2.3 million in Fall 1957 to 2.8 million in Fall 1964 and then jumping to 3.8 million in Fall 1965.[6] By the early 1960s colleges and universities were scrambling to construct facilities and to recruit new faculty members in anticipation of the surge of growth looming ahead. The emphasis on quality had come earlier and unexpectedly as a result of the Soviet launching of Sputnik in 1957. This event dramatized the need for augmenting the nation's human resource base and for focusing particular attention on developing the most talented youth; it led to passage of the National Defense Education Act which provided limited loans and scholarships.

Meanwhile, economists developed the concept of human capital which blossomed in the early 1960s and demonstrated the powerful effects of human "investment" in education on economic growth and on individual well-being.[7] Simultaneously, social scientists were identifying the "talent loss" resulting because many highly qualified high school graduates who could profit from college were not attending or planning to attend college. These developments combined to justify the enormous expansion of resources invested in the instructional programs and facilities of colleges and universities. They were also instrumental in expanding the amount of organized research activity financed largely by the federal government.

Several national reports proved to be influential in focusing the debate and defining paths for subsequent action. A 1957 report by the President's Committee on Education Beyond High School recommended that planning begin for the projected expansion of higher education and that faculty salaries which had lagged seriously behind those of other comparable groups be doubled in real terms by 1970 to assure an adequate base for the coming expansion of the college population. Equally important was President Eisenhower's Commission on National Goals which presented its findings in a 1960 report, Goals for Americans.[8] Among the report's 25 educational goals was a call for establishing more community colleges, expanding the production of PhDs, state planning of higher education, low interest loans for college construction, fellowships for graduate students, and increased funds for student loans.[9] Although the goals were not expressed in so many words, the proposed creation of a vast new network of community colleges as well as an expanded and upgraded system of four-year colleges suggested simultaneous pursuit of the goals of improved quality and wider access.

Some progress was achieved during the first half of the 1960s in reducing the financial barriers to college attendance. Several leading states developed their own financial aid programs which later becomes models for federal programs.[10] President Johnson's War on Poverty legislation in 1964 led to creation of the Work Study Program and to special grants to help minority students attend college. Additional impetus for equity came with passage in 1965 of the Higher Education Act, which provided through the commercial banks a system of subsidized loans for college and university students. Despite these advances, the total resources devoted to student aid were still quite small.

1967-68 to 1972-73--Pursuit of Equity

As this period began, new forces were already pushing for greater equality of opportunity. As concern mounted over the "talent loss" resulting from financial barriers to attending college, people became increasingly conscious of the poverty problem. In addition, the pressures growing out of the civil rights movement focused new attention on issues of inequality. Taken together, these forces quickly pushed concerns about quality into the background.

The opportunities inherent in these developments were quickly recognized by Clark Kerr who was then organizing the Carnegie Commission on Higher Education, and he crystallized them in an influential chapter in the 1968 Brookings Institution volume Agenda for a Nation.[11] Kerr outlined six major issues facing higher education in the 1970s. These included the quest for greater equality of educational opportunity, the problems of financing higher education in view of rising costs, the likelihood of extensive use of new "technology" in learning, the continuing shortages of PhDs and MDs, the need for metropolitan universities to develop an urban focus, and the special financial difficulties of black, liberal arts, and state colleges.

To deal with these problems, Kerr pushed for federal solutions through federal funding. This approach no doubt reflected the successes of higher education over the previous decade in garnering federal support for research, college buildings, and special equipment. Yet it also marked a significant departure from the traditional combination of financial support--tuition from students and their parents, state and local tax revenues for public institutions, and voluntary support for private institutions. Rather than push only for institutional support, Kerr called for an expanded program of student financial aid that would rise to $15 billion dollars annually by 1976. A third of this total would provide continued support for research; another third would underwrite a system of need-based student financial aid grants; and the remainder would go for construction, institutional support, special programs, and medical education.

This report was followed within a year by two sets of detailed proposals. One was issued by Kerr's Carnegie Commission on Higher Education[12] and the other emanated from an Advisory Task Force created by the Department of Health, Education, and Welfare under the direction of Alice Rivlin, then Assistant Secretary for Health, Education, and Welfare.[13] These reports proved to be surprisingly similar in their recommendations, calling for a federally financed system of need-based student financial aid grants, direct institutional grants tied to the number of students receiving support, and various related proposals to deal with special needs. Both reports made considerable effort to justify their particular recommendations, to estimate their costs, and to assess their likely effects. It is clear that these recommendations constituted a package, with student aid as the centerpiece of an integrated set of proposals whose goal was to promote greater equality of educational opportunity.

Meanwhile, economists were turning their attention from human investment to issues of poverty, income distribution, and the income distribution effects of public programs. Their studies showed that prevailing policies had the effect of directing the bulk of higher education subsidies to youths from high and middle income families rather than lower income families, thereby disputing the conventional wisdom.[14] These findings accentuated the desirability of need-based student financial aid programs to help offset financial barriers to college attendance.

A federal student financial aid system finally emerged in 1972 with passage of the Basic Education Opportunity Grant (BEOG) program which provided grants to students based on their financial need.[15] The program was phased in over a four year period beginning in 1973-74 and covering all undergraduates by 1976-77. This program completed the erection of a federal aid system relying on a combination of grants, loans, and work-study programs to help youths from lower income families overcome the financial barriers to college attendance.

1972-73 to 1980-81--Consolidating Equity Gains

The period from 1972-73 to 1980-81 was one of increased difficulty. Throughout this period colleges and universities continued to grapple with a myriad of problems associated with student unrest that had begun in the late 1960s, calls for educational reform, pressures of increased enrollments, growing proportions of women and minority students, and changing preferences among students in their major fields of study. The trickle of literature on these and related developments swelled into a vast torrent, fed in part by the Carnegie Commission's recruitment of legions of scholars to examine every facet of higher education.

Meanwhile, many institutions experienced difficulty maintaining support for instruction as economic growth slowed, episodes of sharp inflation occurred, and other social programs gained favor. Constant dollar declines in support for students occurred in many states, even though nationally per-student appropriations actually increased. This apparent discrepancy resulted in part from public expectations that higher education could help solve a wide array of social problems--including health, poverty, and the environment--and from increases in the numbers of administrators needed to assure accountability. In addition, the financial squeeze on many state budgets slowed the flow of resources to higher education even though enrollments were steadily rising.

The creation of the need-based student grant system in 1972 meant the realization of a goal first proposed by Truman's Zook Commission almost a quarter of a century earlier. But this did not mean that everything went smoothly. The less buoyant economy of the 1970s coupled with several sharp bursts of inflation produced increased stress within higher education and between it and its outside constituencies. For example, middle income families, finding that their children could not qualify for Pell (formerly BEOG) grants, pressured Congress to give them greater access to student loans. The result was passage of the 1978 Middle Income Student Assistance Act[16] which eliminated the requirement that students must demonstrate financial need to be eligible for financial aid from the subsidized Guaranteed Student Loan program. Borrowing expanded rapidly, and soon loans displaced grants as the most common form of student aid.

The large-scale movement of middle income students into the ranks of aid recipients also became a focus of controversy. Examples became commonplace of middle income students buying cars or purchasing high-interest-bearing certificates of deposit with the proceeds of their heavily subsidized student loans rather than using the money to pay for education. On a broader scale there were rumblings about whether America had caught the "British Disease" which conjured the image of public programs exhausting their ability to assist genuinely needy people but becoming increasingly inefficient by including virtually everyone. At the same time there was a developing sense that government regulation of higher education had become overly burdensome and inefficient.

Despite these problems the period reflected efforts to consolidate the gains already made and to work out the inevitable difficulties associated with the new student aid program. It culminated with the Fall 1980 reauthorization of student aid programs which called for a sizeable expansion of grants and loans that would give these programs a prominent and presumably secure place in the nation's array of social programs.

1980-81 to the Present--Renewed Emphasis on Quality

The election of 1980, which brought the Reagan administration and a Republican majority to the U.S. Senate, marked an abrupt shift from an almost exclusive focus on equity to one emphasizing economic and political reform. The election campaign and its aftermath drew attention to double-digit inflation, the need to cut federal spending and taxes, deregulation, and the desire to enhance U.S. competitiveness.

It also drew attention to declining SAT scores, increased drug problems in the schools, and growing illiteracy. Most importantly, it downplayed the role of federal policy in attempting to solve these problems. These changes are documented by Whitt, Clark, and Astuto[17] who found a sudden shift of policy focus after 1980 from concerns about equity to concerns about related issues such as academic performance and institutional improvement; they also found a public consensus in support of this shift.

Student financial aid, the major avenue of federal support for higher education, came under sharp attack in 1981 with Senate-led efforts to substantially reduce appropriations for grant and loan programs. Two important changes were enacted, the re-establishment of income requirements in the Guaranteed Student Loan program, essentially recession of the MISAA, and the elimination of Social Security education benefits. Thereafter, a bipartisan consensus in the Congress prevented further cuts.[18]

A Reagan administration initiative, aimed at improving the quality of education, began to gain public support at the same time cuts in student aid were halted. An agenda took shape in a series of national reports focusing on elementary and secondary education.[19] The best known of the reports, A Nation at Risk,[20] renounced preexisting policies as leading to economic, political, and social decline. It exhorted educators and the general public to develop new performance standards in the schools aimed at improving the nation's competitive position. Other similar reports were less dramatic but generally supported the need to raise educational standards.[21]

Shortly thereafter a similar series of reports began to appear which focused on higher education.[22] These reports called for renewed emphasis on quality, a sharpened focus on institutional missions, and greater attention to student learning. Pressures to monitor quality in higher education continue to mount, just as they did earlier for elementary-secondary education.

It is too soon to tell whether efforts to enhance the quality of education will be effective. However, it is clear that recent calls for improvement have yet to result in new infusions of resources similar to whose occurring in previous eras (e.g., the Truman era GI Bill, the Sputnik period, the rapid enrollment expansion of the 1960s, and the significant expansion of need-based financial aid in the 1970s). As in previous periods, several recent national reports call for new resources. As yet, federal and state governments have shown little inclination to respond. Instead, attention has been focused largely on new demands for accountability in using existing resources.

The Analysis

Having established the time periods for this analysis, we turn to the data in hopes of learning whether the changing political-social-economic conditions and the accompanying mandates embodied in commission reports exerted any lasting effect on higher education. We first describe the changing dimensions of the nation's investment in higher education institutions. We then examine higher education expenditures in an effort to highlight major trends and reveal the interplay between the external and internal forces affecting the allocation of resources within the higher education sector. This information paves the way for measuring the burden of higher education costs and the way these costs are shared among students/parents, state and local taxpayers/private donors, and federal taxpayers through the provision of student financial aid.

We rely largely on official data from the Department of Education and its predecessor, the U.S. Office of Education. Because of changes in the data collection systems as well as periodic alterations in the definitions of expenditures and revenues, the detailed data are not completely comparable over the 40-year period under study.[23] Nonetheless, the broad categories employed here are consistent. We do caution readers that this analysis for all of higher education hides differences between public and private sector institutions as well as among universities and four-year and two-year institutions.[24]

Enrollment Growth. Enrollment growth is described by two different sets of data. One is total enrollment, for which the data are readily available. The other is full-time equivalent (FTE) enrollment, which must be estimated. As can be inferred from columns 1 and 2 of Table 1, full-time equivalent enrollment as percentage of total enrollment has been declining. This decline results from the steady increase in the proportion of part-time students (column 3) which is attributable to several developments, the most important being the substantial increase of older students, those age 25 and over, who typically cannot attend full time.

Insert Table 1 About Here

The enrollment growth figures (column 1) reflect the tidal wave-like effect of the baby boom as well as the increasing desire of adults either to begin or to return to college. Enrollments edged up only slightly from the late 1940s to the late 1950s, about doubled by the late 1960s, almost doubled again by 1980-81, and then increased at a much slower pace in the early 1980s. The continued enrollment increase in the 1980s is at odds with many projections from the 1970s that had anticipated enrollment declines by the early 1980s.[25] FTE full-time equivalent enrollment (column 2) grew more slowly and reflects the steadily rising proportions of part-time enrollments (column 3).

An appreciation for the implications of enrollment growth is provided by examining head count enrollments as a percentage of the college age population (18-24) (column 4) and of the adult population age 18 and above (column 5). The percentage enrolled among those age 18-24 rose steadily from 16 percent in 1947-48 to 43 percent in 1984-85.[26] The percentage enrolled among those age 18 and above rose from 2.6 percent in 1947-48 to 7.2 percent in 1984-85. For both series the biggest relative gains occurred from 1957-58 to 1967-68 and from 1967-68 to 1972-73. As these data reveal, a substantial expansion in demand for higher education occurred, but its uneven rate of growth was heavily influenced by demographic forces.

Total Resources for Higher Education. Providing for these ever growing numbers of students required raising substantial amounts of new revenue from taxpayers, private donors, students, supporters of research, and others who purchase services from higher education institutions. Revenues and expenditures grew rapidly and at identical rates, as shown in Table 2. This is not surprising since the level of expenditures is conditioned by the amount of revenues available. As Howard R. Bowen[27] so aptly explains, higher education institutions are essentially nonprofit organizations which are forced to live within their available resources. At the same time they seek constantly to increase their revenues in order to better serve their students and society.[28]

More interesting for our purposes is the relationship between higher education's revenue growth and the economy's capacity to support higher education. This is illustrated in column 4 which shows total current fund revenues as a percentage of gross national product; revenues averaged about one percent of GNP in the 1940s and 1950s, rose to slightly over two percent in the late 1960s, and then stabilized at about two and one-half percent of GNP in the 1980s. These results demonstrate the close connection between enrollment levels and the proportion of the nation's total resources required to support higher education. This relationship prevails largely because funding formulas, at least in the public sector, give considerable weight to enrollments.

Insert Table 2 About Here

Higher Education Expenditures. We shift our focus now to current fund expenditures shown in Table 3. Total current fund expenditures, column 1, increased from $1,883 million in 1947-48 to $92,211 million in 1984-85, an almost fifty-fold increase. The largest annual rate of increase occurred from 1957-58 to 1967-68 when total expenditures increased three and one-half times; they then quadrupled by 1980-81 and they increased again by about 50 percent in the final but appreciably shorter period from 1980-81 to 1984-85.

Insert Table 3 About Here

These data on total current fund expenditures are not particularly helpful in understanding the impact of the developments discussed earlier on the quality of education.

The reason is that total expenditures include funds allocated to carry out other activities, some of which are self-financing, that are not central to the instructional activities of colleges and universities.

How do we construct estimates of what we have just referred to as instructional or instruction-related expenditures? Several categories of expenditures need to be excluded from total current fund expenditures to arrive at instruction-related expenditures. The first category includes activities that are self-financing, such as auxiliary enterprises (dormitories, etc.), hospitals, and related activities. Expenditures on these activities (column 2) grew at a somewhat faster pace in recent periods than did total expenditures.

A second category includes research expenditures, which are heavily financed by outside sources, and also public service expenditures. Research activity builds new knowledge which is subsequently disseminated through classroom instruction and published journal articles and books. While research is an integral element in the mission of higher education institutions, it is not directly related to instruction, especially at the undergraduate level. Research expenditures proved to be a substantial component of total expenditures and grew rapidly in the 1950s and 1960s. Since then the growth of these activities has slowed appreciably, however.

A third category is institutionally-administered student financial aid expenditures, which also are not central to the instructional activity of institutions even though important to the attainment of other objectives. By way of illustration, student financial aid expenditures from institutional sources may affect the mix of students at individual institutions; and also overall enrollment levels, but beyond that, they are unrelated to instruction. Student financial aid expenditures administered through higher education institutions increased substantially, especially in the early periods. Of course, a more significant amount of financial aid--that provided largely through federal programs--does not flow through institutions but rather is distributed directly to students through grant and loan programs.

If we exclude each of these categories of expenditures by subtracting columns 2-4 from column 1 in Table 4, we arrive at something that can be identified as costs related to instruction, hereafter called instruction-related costs or expenditures.[29] These costs represent approximately 60 percent of total current fund expenditures.

Instruction-Related Costs, Tuition and Fees, and Student Aid. We now focus on the relationship between instructional costs, the charges students pay in the form of tuition and fees, and the amounts of financial aid received by students. For purposes of this analysis we take student financial aid to represent efforts to promote equity and instruction-related costs to represent efforts to improve quality. Changes in student financial aid relative to instruction-related costs represent an indicator of the tradeoff between equity and quality. Tuition and fees help to highlight the dimensions of this tradeoff.

The data needed for this analysis are shown in Table 4, columns 1-3, which highlight the growth of instruction-related expenditures, tuition and fee payments, and institutional administered student financial aid. Column 4 shows aid going directly to students and column 5 is the sum of columns 3 and 4. To make these data as comparable as possible over time, we incorporated our estimates of financial aid provided through the veterans' program (the GI Bill) in 1947-48 and 1957-58.[30]

Insert Table 4 About Here

Sharing the Costs of Higher Education. The next step in the analysis is to show how the costs of higher education are shared. This is accomplished in Table 5 by rearranging the data from Table 4. Total instruction-related costs are shared between students who pay tuition and fees, and state and local taxpayers and private donors (column 2) who make up the difference.

Insert Table 5 About Here

Nonstudent payment rose from 1947-48 and then stabilized in the 65 to 67 percent range through 1980-81; the student share, which is the exact opposite of the nonstudent share, hovered in the 33-35 percent range from 1957-58 through 1980-81. By 1984-85, however, the gross student share had risen to 38.0 percent. This change can be given two interpretations. One is that it was easy in light of the strong demand for education to increase revenue by raising the share paid by students. Another explanation is that the student share was forced up because of the slow growth of support from the nonstudent sector. At this time we cannot discriminate between these two explanations.

The gross share identified as paid by students is not really paid by them because of two offsets. One is institutionally administered student financial aid, which has a relatively minor impact because the amounts of such aid are small (column 4). The other and more important is financial aid that goes directly to students, mostly in the form of federal guaranteed loans and need-based grants. When these sources of aid are combined and subtracted from the student share, we observe a significant drop in the net student share (column 5). The net student share was negative in 1947-48 because of the large infusion of educational benefits arising from the GI Bill. By 1957-58 the continuing effects of the GI Bill and other sources of aid were still sufficient to maintain the net student share near zero.

By 1967-68 the net student share rose to roughly one-half of the gross share. However, by 1972-73 dramatic effects resulting from the expansion of need-based student aid are evident. In fact, total student financial aid funds grew so rapidly that they exceeded total tuition and fee payments by students. This situation continued throughout the 1970s so that by 1980-81 student aid exceeded tuition and fees by an even larger relative margin. But as a result of increases in tuition and fees during the first half of the 1980s, the net student share rose to 38 percent by 1984-85, a level still well below that of the late 1960s.[31]

The results for 1984-85, which show a rise in the net student share, hide the considerable efforts made by institutions to offset the slower growth of resources available to them from traditional sources (i.e., state and local taxes and private funds). Thus, tuition and fees were raised to help increase faculty salaries which had declined substantially in real terms, to permit undertaking long-deferred maintenance and modernization of facilities, and to acquire new technology such as computers.

How Burdensome Were These Costs?

Nothing has been said yet about the burden of college attendance costs or the ability of students and their families to pay for higher education. One straightforward approach that avoids having to convert any of the data from nominal to real values to correct for price level changes is to compare instruction-related costs with some comprehensive measure of the nation's capacity to finance higher education costs. Rather than working with the total dollar values we want to show how instructional costs per student compare with a similar measure of individual or personal capacity to pay.

Because gross national product (GNP) provides such a convenient and well-understood measure of aggregate capacity to pay, we use GNP per member of the civilian labor force, as a comparable measure of individual capacity to pay. GNP is preferable to other widely used measures because it reflects the value of all goods and services produced in the economy; it can also be related more directly to overall comparisons of higher education revenue with GNP, as shown in Table 2. Using GNP per member of the civilian labor force gives us a measure of the resources produced by the average person, including those who want jobs but are unable to find them. It can therefore be viewed as reflecting the capacity of the average member of the labor force to provide tax and nontax support for higher education.

This approach contrasts with studies of how families meet the nontax costs of college. Such studies typically use family income or disposable personal income measures. The measure we use here is also preferable to per capita measures, which are distorted by their sensitivity to demographic shifts. Of particular importance for this analysis is the change in the dependency ratio which contrasts the nonworking to working population. The nonworking population has changed substantially over the past 40 years, reflecting not only altered patterns of labor force behavior among the older population but also shifts in the child and youth population. The latter group was relatively small in 1947, increased massively over the next several decades as a result of the baby boom, and gradually diminished in size during the late 1970s and early 1980s. Put another way, changes in per capita GNP include those very effects we are trying to identify.

The two measures we have selected, instruction-related costs per student and GNP per member of the civilian labor force, are shown in the first two columns of Table 6. We then show in columns 3-7 several measures of costs as a percent of the GNP measure to highlight relationships among the level of instructional costs, who pays for them, and how financial aid affects the student share of these costs.

Insert Table 6 About Here

We observe that instruction-related costs per student as a percentage of our GNP measure rose through 1967-68, declined through 1980-81, and then rose again to 7.3 percent (column 3). The nonstudent share of costs as a percentage of the GNP measure increased through 1967-68, declined through 1980-81, and increased only modestly since then (column 4). In other words, as instruction-related costs rose since 1980-81, the share of instructional costs provided by traditional sources of support--state and local taxes as well as voluntary support--did not respond significantly, rising by only 0.3 percentage points. However, the gross student share, reflected by tuition and fees, after remaining constant from 1972-73 to 1980-81 increased by 1.2 percentage points to its 1984-85 level of 7.3 percent (column 5). In short, the increase in instruction-related costs was had to be met largely by higher student charges.

What students actually pay, however, differs from the gross student share, as already noted. Institutionally-administered aid reduces the student share as a percentage of our GNP measure (column 6). This share has remained approximately constant since 1957-58, varying within the narrow range of 4.8 to 5.5 percent (column 6). From 1980-81 to 1984-85, the student share rose from 5.0 to 6.0 percent, increasing by about as much as the increase of 1.2 percent in the gross student share (column 5). This means that institutionally-administered aid rose enough to largely offset the rise in tuition and fees.

Column 7 tells the important story of the effects of the greatly increased amounts of student financial aid, both institutionally-administered aid and also direct aid, which is provided largely by the federal government. The net student share starts out negative in 1947-48 because of the GI Bill. By 1957-58 the percentage had turned positive but was still much lower than the gross student share because veterans still received GI Bill benefits. The 1967-68 share comes close to representing the pre-federal aid era inasmuch as the amounts of guaranteed student loans, work-study aid, and supplementary educational opportunity grants were still quite small--these programs had been in operation no more than a year or two.

The substantial growth in student aid between then and 1972-73, the year before the BEOG program took effect, is illustrated by the drop in the net student share to -1.0 percent. Put another way, total student aid in 1972-73 for the first time since 1947-48 exceeded total tuition and fees. With the subsequent expansion of the BEOG program and the relaxed standards applying to federal grant and loan programs as a result of the 1978 Middle Income Student Assistance Act, student aid resources expanded greatly. The net student share in 1980-81 once again exceeded total tuition and fees.

The most recent period is of special interest. Tuition and fees grew more rapidly than total student aid; tuition and fees per student as a percent of GNP per member of the civilian labor force rose by 1.3 percentage points whereas the net student share paid increased by 2.3 percentage points. Institutionally administered aid increased by 1.0 percentage points; had this increase not occurred, the net student share would have increased even more than it did. As noted before, because institutionally administered aid largely offset tuition increases, the source of the increase in the net student share is the considerably slower growth of other student aid, principally federal aid programs.

One interpretation of what happened is that institutionally administered aid grew more rapidly to compensate for the slower growth of federal aid. Such aid could grow more rapidly because institutions were able to attract more revenue, largely through tuition increases. These revenues could be used, in turn, to help finance student aid. What remains most striking is that the net student share at 0.7 percent in 1984-85 is less than 10 percent of the gross share.

This leads us to ask what caused instruction-related expenditures to rise so sharply (by 1.4 percentage points) from 1980-81 to 1984-85. A key factor was the need to raise faculty salaries that had lagged seriously throughout the 1970s. Early in the 1980s it became evident that higher salaries were required to attract young people into the academic profession and to retain faculty members who were becoming increasingly receptive to outside offers, particularly for nonacademic jobs. At the same time the costs of goods and services had escalated rapidly because of the largely unanticipated price increases of the late 1970s. In addition, maintenance expenditures that had been deferred because of the tight budgets of the 1970s needed to be made.

For all these reasons, institutions found it necessary to augment their funds to offset these cost increases. It proved to be easier to pass on these costs to students via increased tuition and fee charges than to win substantial additional support from traditional sources, state and local taxpayers and private donors. The depressed state of the economy reflected by the relative stability of real GNP through much of the early 1980s made it difficult to generate additional revenues from these traditional sources. Student demand, however, continued to be strong as a result of the growing concern about getting jobs by the last cohorts of the baby boom. Of the additional funds raised through increased tuition, a considerable portion appears to have been reallocated to institutionally-administered aid in an effort to combat the adverse effects of rising tuition on lower income students.

One other important explanation needs to be mentioned. Higher education institutions, often in response to state mandates to improve the quality of education, argued that tuition increases were required to improve the quality of education they were providing. By paying higher salaries to attract and retain better faculty members, updating equipment and facilities, and adapting new technology to the classroom, institutions believed they were improving quality. Most institutions would have preferred to find other ways of absorbing these costs, but state governments resisted the alternative of increasing their appropriations for higher education. As yet, increased state and local support as well as larger contributions from the voluntary sector have not materialized. Thus, most of the increase in per FTE student instructional costs (from 17.7 to 19.1 percent of GNP per member of the civilian labor force) is accounted for by increases in tuition which, as already noted, were offset to a considerable degree by increases in institutionally-administered aid.

In showing how the gross student share of the costs is altered by taking into account student aid, we recognize that such aid is intended to offset more than tuition and fees; it also goes to help pay for the not insignificant nontuition costs of higher education which include books, room and board, and incidental expenses. We are not arguing that student financial aid funds should have been given either to students or institutions to pay the costs of tuition and fees. Rather our purpose has been to dramatize the magnitude of increased student aid funds and to show how the relative emphasis on investing in quality versus equity has altered the overall effect of aid on the gross student share of costs.

We conclude that federal student financial aid funds provided a powerful injection of new resources into the higher education system. By 1980-81 these funds exceeded total tuition and fees. Though total student aid increased more slowly from 1980-81 to 1984-85, it continued acting as an important offset against the rising costs of instruction.

Conclusion

It is clear that the substantial rise in college enrollments over the past forty years required additional funds to provide instruction-related services. Aggressive efforts were made by colleges and universities to increase current revenues to purchase the inputs required to provide these services. In fact, instruction-related expenditures, tuition/fees, and student financial aid all rose substantially from the late 1940s to the early 1980s. Yet the gross student share of instruction-related costs paid by students through their tuition and fees payments after peaking in 1967-68, remained relatively constant in the 1970s and then increased significantly by 1984-85. After taking student financial aid funds into account, however, we find that the net student share dropped substantially because of the infusion of ever larger amounts of federal funds from 1967-68 to 1980-81. However, as the growth of federal aid support slowed, in the early 1980s, the net student share rose.

At the same time the relative resources allocated to instruction-related costs and student financial aid changed in a systematic way. The former costs expressed relative to our GNP measure rose steadily to 1967-68, dropped off through 1980-81, and have since increased, reflecting renewed attention to quality. The net student share relative to our GNP measure moved in similar fashion, in line with the focus on quality through the 1950s and early 1960s, then shifting to pick up the heavy focus in equity through the 1970s, and moving in the early 1980s consistent with the renewed emphasis on quality.

The experience of this recent period needs to be interpreted carefully because a larger proportion of 1980-81 as contrasted to 1984-85 student aid was not targeted on low income students (i.e., nonneed based guaranteed student loans were widespread in 1980-81 but had been eliminated by 1984-85). For this reason the rise in student aid resources from 1972-73 to 1980-81 and the decline from 1980-81 to 1984-85 may exaggerate somewhat the effect of student financial aid in reducing financial barriers to college attendance among students from lower income families.

The usefulness of the periods employed in this analysis derive from their ability to differentiate among changing social goals. These goals for the most part reflected efforts to resolve problems outside of higher education. However, for higher education these goals were translated into essentially two alternating mandates: to improve quality and to improve equity. We do discern the pendulum effect mentioned earlier. The net student share of instructional costs diminishes as equity concerns dominate, as from 1967-68 to 1980-81, and then increases again when greater attention is given to quality, as occurred from 1957-58 to 1967-68 and from 1980-81 to 1984-85. It is important to note that each swing, except the one currently in progress, was dominated by increases in tax revenues--state and local revenues in periods that emphasize quality and federal revenues in periods that emphasize equity. The current swing toward quality is being financed largely at the expense of equity, with the greatest change showing in the net student share. If it is correct to assume that increased investment in either quality or equity has some perceptible effect, the reliance on tuition revenues since 1980-81 to finance improvements in quality promises, barring increased support for higher education from nonstudent resources, to undo equity gains during the 1967-68 to 1980-81 period.

What progress has been made in attaining the social goals for higher education? More specifically, what evidence is there that efforts to improve equity which dominated higher education financing between 1967-68 and 1980-81 were effective? That our ability to gather and assess such evidence is primitive is demonstrated by the focus of most analyses on inputs (i.e., resources invested) as opposed to observed effects on student abilities and behaviors. However, on equity it is clear that the net cost of college attendance for students with incomes low enough to qualify for student aid declined sharply in recent years; this in itself stands as a major accomplishment. In addition, evidence is mounting that while student aid does not appear to have substantially altered the composition of college enrollments,[32] income no longer predicts the lack of persistence in college.[33]

The paradox of the significant lack of change in the composition of enrollment and in persistence is plausibly explained by the high degree of overlap between being poor and the most powerful current predictor of failure to attend or persist, namely academic performance in elementary and secondary school. With the current emphasis on quality this explanation offers hope that efforts to improve quality will also serve to improve equity if the academic performance of low income students improves. This would make student financial aid more effective in the long run as a means of assuring equitable access to higher education. On the other hand, if efforts to improve quality continue to rely as heavily as they do currently do on revenues from tuition and fees, it may well be that low income will become an important predictor of low persistence.

The implications of this research for public policy are that long term gains from efforts to improve both quality and equity are unlikely, unless progress toward removing financial barriers is maintained, and unless nonstudent sources of funding (e.g. state, federal, and private) increase to finance improvements in quality.

Conversely, long term gains are not likely to result if advocates for equity see appropriations for student aid as the sole indicator of progress. Also important is the need to improve the academic performance of low income students before they reach college. Increases in student financial aid beyond what is needed to eliminate income as determinant of entering into college and as a predictor of persistence are likely to result in inefficiencies which in the long run could erode political support. On the other hand, improvements in the academic performance of students from low income backgrounds in elementary and secondary schools, offer legitimate grounds for future increases in student financial aid funding.

Notes

1. Higher education finance issues are discussed in several recent papers: Paul T. Brinkman and Dennis P. Jones, *College and University Adjustment to a Changing Financial Environment and Structural Implications of Institutional Adjustment Strategies*. (Boulder: CO. National Center for Higher Education Management Systems. Paper presented to the National Science Foundation, June 18, 1986). Joseph Froomkin, *College and University Adjustment to a Changing Financial Environment and Structural Implications of Institutional Adjustment Strategies*. (Washington, DC: Joseph Froomkin, Inc. Paper presented to the National Science Foundation. Carol Frances, *College and University Adjustments to a Changing Financial Environment: Implications for the Resources Available for Science and Engineering Teaching and Research*. (Washington, DC: Paper presented to the National Science Foundation, July 1, 1986).

2. Leslie W. Koepplin and David A. Wilson, eds., *The Future of State Universities*. (New Brunswick, NJ: Rutgers University Press, 1985).

3. David C. McClelland, *The Achieving Society* (New York: Irvington Publishing, 1976).

4. Presidents Commission on Higher Education, *Higher Education for American Democracy* (Washington, DC: U.S. Government Printing Office, 1947).

5. Janet Kerr-Turner, *From Truman to Johnson: Ad Hoc Policy Formulation in Higher Education* (Ph.D. dissertation, University of Virginia, 1986).

6. The age 18 population subsequently hovered in the 4.2-4.3 million range from 1975-79 but in 1984 had dropped to 3.7 million.

7. See T. W. Schultz, *Journal of Political Economy*, (October 1962) vol. 46; Edward F. Denison, *The Sources of Economic Growth and the Alternative Before Us* (New York: Committee for Economic Development, 1962).

8. The Report of the President's Commission on National Goals, *Goals for Americans* (Prentice Hall, 1960).

9. Janet Kerr-Turner, op. cit.

10. Lois Rice, ed., *Student Loans: Problems and Policy Alternatives* (New York: College Entrance Examination Board, 1977).

11. Clark Kerr, *Agenda for a Nation*, ed. Kermit Gordon (Washington, DC: The Brookings Institute, 1968).

12. Carnegie Commission on Higher Education, Quality and Equity: New Levels of Federal Responsibility for Higher Education (New York: McGraw Hill, 1968).

13. Alice Rivlin, Toward a Long Range Plan for Federal Financial Support for Higher Education: A Report to the.(Washington, DC: Department of Health, Education, and Welfare, January 1969).

14. W. Lee Hansen and Burton A. Weisbrod, Benefits, Costs, and Finance of Public Higher Education (Chicago: Markham Publishing Company, 1969).

15. Lawrence Gladieux and Thomas R. Wolanin, Congress and the Colleges (Lexington, MA: Lexington Books, 1976).

16. 1978 Amendments to the Higher Education Act of 1965.

17. E. Whitt, D. Clark, and T. Astuto, An Analysis of Public Support for Educational Policy Preferences of the Reagan Administration (Policy Studies Center of the University Council for Educational Administration, December, 1986). Occasional Paper No. 3.

18. Jacob O. Stampen and Roxanne W. Reeves, "Coalitions in the Senates of the 96th and 97th Congresses" in Congress and the Presidency: A Journal of Capital Studies, vol. 13, no. 2.

19. E. L. Boyer, High School: A Report on Secondary Education in America (New York: Harper and Row, 1983); Business Higher Education Forum, America's Challenge: The Need for a National Response (Washington, DC: Author, 1983); National Commission on Excellence in Education, A Nation at Risk, The Imperative for Educational Reform (Washington, DC: Government Printing Office, 1983); National Task Force on Education for Economic Growth, Action for Excellence (Denver: Education Commission of the States, 1983); D. Ravitch, The Troubled Crusade: American Education 1945-1980 (New York: Basic Books, 1984); T. R. Sizer, Horace's Compromise: The Dilemma of the American High School (Boston: Houghton-Mifflin, 1984); The Twentieth Century Fund Task Force on Federal Elementary and Secondary Education Policy, Making the Grade (New York: Author, 1983).

20. National Commission on Excellence in Education, A Nation at Risk: The Imperative for Educational Reform (Washington, DC: Government Printing Office, 1983).

21. M. S. Smith, Educational Improvements Which Make a Difference: Thoughts About the Recent National Reports on Education (Washington, DC, 1984). Paper presented to the Federation of Behavior, Psychological and Cognitive Sciences.

22. A Nation at Risk; F. Newmann, Integrity in The College Curriculum: A Report to the Academic Community (Washington, DC: Association of American Colleges, 1984); Ernest L. Boyer, College: The Undergraduate Experience in America (Princeton: Carnegie Foundation for the Advancement of Teaching, 1987).

23. We begin with 1947-48 because data for 1946-47 are incomplete.

24. We plan to examine differences between public and private institutions in a subsequent paper.

25. Carol Frances, The Short Run Economic Outlook for Higher Education (Washington, DC: American Council on Education, 1980).

26. To the extent that the percentage of students age 25 and above increased, the rise in the college-going rate is somewhat overstated.

27. Howard Bowen, The Costs of Higher Education (San Francisco: Jossey-Bass, 1980).

28. For other recent studies of expenditures, see Joseph Froomkin, "The Impact of Changing Levels of Financial Resources on the Structure of College and Universities;" Paul T. Brinkman and Dennis P. Jones, "Colleges and Universities Adjustment to Changing Financial Enrollment and Structure Implementations of Institutional Adjustment Strategies" presented at the National Science Foundation Conference, July 29, 1986; and Durward Long, "Financing Public Universities and Colleges in the Year 2000," in Leslie W. Koepplin and David Wilson, eds., The Future State of Universities: Issues in Teaching, Research, and Public Service (New Brunswick, NJ: Rutgers University Press, 1985).

29. Note that this is not the same as what the institutional expenditure data label as "instruction," which is defined much more narrowly.

30. We did this by including in total tuition and fees (column 2) that part of the tuition and fee charges paid directly by the federal government for World War II veterans attending college under the GI Bill. A special allowance to defray the costs of expanding capacity to accommodate the enrollment of these veterans was deducted before adding in the tuition and fees that veterans would have paid if all of their GI Bill benefits had gone directly to them. For this reason we must think of this portion of tuition and fee charges as a form of student aid going directly to students. This approach is consistent with the tradition since then of providing federal aid, for the most part, directly to students who can be viewed as using some part of their aid funds to pay tuition and fee charges.

31. The shares for 1980-81 should be viewed with some caution because they reflect more than the equity effects of higher education finance. At that time Guaranteed Student Loans were awarded without regard for financial need, and hence many middle income and even upper income students took advantage of the favorable borrowing opportunities this program afforded. This inflated the student aid total but by how much is not clear.

32. See W. Lee Hansen, "Economic Growth and Equal Educational Opportunity," in Edward Dean (ed.), *Education and Economic Growth* (Cambridge, MA: Ballinger, 1984); Gregory A. Jackson, *Workable, Comprehensive Models of College Choice* (Cambridge, MA: Harvard University Final and Technical Report Contract #NIE-R-400-83-0055).

33. See Jacob O. Stampen and Alberto F. Cabrera, Exploring the Effects of Student Aid on Attrition. *Journal of Student Financial Aid*, 16(2), pp. 28-40; Paul Brinkman, Sandra Baum, & Saul Schwartz, "Financial Aid to Low Income Students: Its History and Prospects," mimeo, Institute for Poverty Research, University of Wisconsin-Madison, 1987.

Table 1

Enrollment in Higher Education Institutions

Year	Total Head Count Enrollment (in thousands) (col. 1)	FTE Enrollment Estimated (in thousands) (col. 2)	Part Time as a Percent of Head Count Enrollment (col. 3)	Head Count Enrollment as a Percent of 18- to 24-Year-Olds (col. 4)	Head Count Enrollment as a Percent of Population Age 18 and Above (col. 5)
1947-48	2,616	2,222	22	16	2.6
1957-58	3,068	2,395	33	20	2.5
1967-68	6,912	4,591	31	29	5.4
1972-73	9,298	6,973	34	36	6.4
1980-81	12,097	8,819	41	41	7.4
1984-85	12,242	9,059	41	43	7.2

Sources:

Column 1	Historical Statistics of the United States, Colonial Times to 1970, Series H 316-326, p. 210. Statistical Abstract of the United States, 1970, Table 185, p. 132; 1981, Table 266, p. 158; 1985, Table 252, p. 150. Fact Book, 1986-87, American Council on Education, Macmillan Publishing Company, 1987.
Column 2	Fact Book, 1980-81, American Council on Education, Macmillan Publishing Company, 1980. Fact Book, 1984-85, American Council on Education, Macmillan Publishing Company, 1984.
Column 3	Calculated using part-time enrollment data. Pre 1980-81 part-time enrollment estimated from data in June O'Neill, Resource Use in Higher Education, Carnegie Commission on Higher Education, 1971. 1980-81 part-time enrollment from Digest of Educational Statistics, 1985-86, p. 101 and Fact Book, 1984-85, American Council on Education, Macmillan Publishing Company, 1984. For 1984, see Fact Book 1986-87, Macmillan Publishing Company, 1987.
Column 4	Calculated using age 18-24 population from U.S. Bureau of the Census. Series P-25, Nos. 311, 519, 704, 721, 800.
Column 5	Calculated using Total Population from U.S. Bureau of the Census. Series P-25, Nos. 311, 519, 704, 721, 800.

Table 2

Total Current Fund Revenues and Expenditures for Higher Education Institutions and Gross National Product and Annual Percentage Rates of Increase

Year	Total Current Fund Revenues (in millions) (1)	Total Current Fund Expenditures (in millions) (2)	Gross National Product (in billions) (3)	Total Current Fund Revenues as a Percent of GNP (in percent) (4)
1947-48	$2,027	$1,883	$235	0.9%
% Annual Change	9%	9%	7%	
1957-58	4,641	4,509	451	1.0%
% Annual Change	14%	14%	6%	
1967-68	16,825	16,566	816	2.1%
% Annual Change	9%	9%	8%	
1972-73	26,234	27,956	1,213	2.2%
% Annual Change	12%	12%	11%	
1980-81	65,585	64,053	2,732	2.4%
% Annual Change	9%	9%	8%	
1984-85	92,472	89,951	3,663	2.6%

Notes: GNP data are for calendar year in which academic year begins. Total current fund revenues and expenditures for 1984-85 were adjusted to be comparable to the earlier data by subtracting Pell Grant receipts and expenditures.

Sources:

Columns 1 and 2	or 1947-48, 1957-58 and 1967-68 see, Historical Statistics, Colonial Times to 1970, Series H 716-727, p. 384. For 1972-73 see U.S. Department of Education, Center for Education Statistics, "Financial Statistics of Institutions of Higher Education," and "Fall Enrollment in Colleges and Universities" surveys (November, 1986) and U.S. Statistical Abstract, Table 273, p. 166 (1978). For 1980-81 see Digest of Educational Statistics, 1985-86, Table 137, p. 154. For 1984-85 see "Revenues and Expenditures of Institutions of Higher Education, Fiscal Years 1983-85," OERI Bulletin 2/87, CS87-327B; also, see note to column 1 of Table 3.
Column 3	Economic Report of the President, 1986.
Column 4	Calculated as indicated.

Table 3

Major Components of Current Fund Expenditures for Higher Education Institutions and Annual Percentage Rates of Increase (Millions of Dollars)

Year	Total Current Fund Expenditures (1)	Auxiliary Enterprises, Hospitals (2)	Organized Research and Public Service (3)	Institutionally Administered Student Financial Aid (4)	Instruction-Related Expenses (5)
1947-48	$1,883	$492	$230	$40	$1,162
% Annual Change	9%	5%	15%	11%	9%
1957-58	$4,509	$775	$903	$113	$2,701
% Annual Change	14%	11%	14%	22%	14%
1967-68	$16,566	$2,307	$3,312	$712	$10,235
% Annual Change	9%	17%	2%	8%	9%
1972-73	$27,956	$5,555	$3,065	$1,322	$18,014
% Annual Change	12%	12%	10%	9%	11%
1980-81	$64,053	$12,721	$8,973	$2,505	$39,854
% Annual Change	9%	12%	4%	10%	9%
1984-85	$89,951	$19,899	$10,413	$3,670	$55,969

Notes:

Column 1 see note for column 4.
Column 2 includes Auxiliary Enterprises, Hospitals, and Independent Operations.
Column 3 includes Organized Research, Public Service and Extension.
Column 4 includes Student Financial Aid/Scholarships and Fellowships. For 1984-85 excludes Pell Grant funds which prior to 1984-85 were not included in "scholarships and fellowships" category or on total current fund expenditures.
Column 5 includes column 1 less the sum of columns 2-4.

Sources:

For 1947-48 see, Historical Statistics, Colonial Times to 1970, Series H 716-727, p. 384.
For 1957-58 see, op. cit.
For 1967-68 see, op. cit.; column 3 from Digest of Educational Statistics, 1985-86, Table 142, p. 162.
For 1972-73 see, U.S. Statistical Abstract, Table 273, p. 166 (1978).
For 1980-81 see, Digest of Educational Statistics, 1985-86, Table 137, p. 154.
For 1984-85 see, "Revenues and Expenditures of Institutions of Higher Education, Fiscal Years 1983-85," OERI Bulletin 2/87, CS87-327B.

Table 4

Instruction-Related Expenditures, Tuition and Fees, Receipts and Student Financial Aid Funding (Millions of Dollars)

Year	Total Instruction-Related Expenditures (1)	Tuition and Fees (2)	Institutionally Administered Student Financial Aid (3)	Other Student Financial Aid[a] (4)	Total Financial Aid[b] (5)
1947-48	$1,162	$670[c]	$40	$1,037[d]	$1,077
Annual Change	9%	3%	11%	-9%	-7%
1957-58	2,701	934	113	451	565
% Annual Change	14%	14%	20%	6%	11%
1967-68	10,234	3,380	712	821	1,651
% Annual Change	12%	12%	13%	43%	30%
1972-73	18,014	6,011	1,322	4,871	6,193
% Annual Change	10%	11%	8%	13%	14%
1980-81	39,854	13,773	2,505	14,842	17,347
% Annual Change	9%	12%	10%	1%	3%
1984-85	55,969	21,283	3,670[e]	15,458	19,128

Notes:

[a] For 1947-48 and 1957-58 data are not available on student aid from state and local governments, the federal government excluding veteran's educational benefits, and from the voluntary sector.

[b] Because we were unable to apportion student financial aid between the proprietary sector and the nonprofit sectors, the totals overstate the amount of financial aid available in the nonprofit sector. The effect of this exclusion is probably most important in 1980-81 and 1984-85. For example, students attending proprietary institutions in 1980-81 received approximately 10 percent of the combined total of Pell grants and campus-based aid. (See Gillespie and Carlson).

[c] Includes the $365 m. in tuition and fees paid by the federal government on behalf of veterans.

[d] Includes the 365 m. in tuition and fees paid by the federal government on behalf of veterans, as if their educational benefits had been paid directly to them (see endnote #30).

[e] Excludes Pell Grant Funds which prior to 1984-85 were not included in "scholarships and fellowships" category of institutional expenditures.

Sources:

Column 1: is taken from column 5 of Table 3.
Column 2: same as sources for Table 3.
Column 3: is taken from column 4 of Table 3.
Column 4: 1947-48 and 1957-58 data were estimated from information in 1948 and 1958 Annual Reports of the Veteran's Administration, U.S. Government Printing Office. 1967-68, and 1972-73 data were estimated from information in papers by W. Lee Hansen and by Joseph Boyd in Trends in Postsecondary Education, Office of Education, 1972. Data for 1980-81 and 1984-85 represent the difference between columns 3 and 5.
Column 5: is the sum of columns 3 and 4 except for 1980-81 and 1984-85. For these years the data are from Donald A. Gillespie and Lynn Quincy, Trends in Student Aid 1980-1986, The College Board, 1986.

Table 5

Sharing the Costs of Higher Education
Percentage Shares of Total Instruction-Related Expenditures

Year	Total Instruction-Related Costs (1)	Nonstudent: State-Local Taxpayers and Private Donors (2)	Gross Student Share: Tuition and Fees (3)	Student Share Net of Institutionally Administered Aid (4)	Net Student Share: Net of All Financial Aid (5)
1947-48	100.0	42.3	57.7	43.7	-4.7
1957-58	100.0	65.4	34.6	30.4	2.3
1967-68	100.0	67.0	33.0	26.1	16.9
1972-73	100.0	66.7	33.3	25.9	-1.0
1980-81	100.0	65.4	34.6	28.3	-9.0
1984-85	100.0	62.0	38.0	31.5	3.8

Sources:

Column 1	Column 1 of Table 4 set equal to 100.0.
Column 2	Column 1 of Table 4 minus Column 2 of Table 4 as a percent of Column 1 of Table 4.
Column 3	Column 2 of Table 4 as a percent of Column 1 of Table 4. See notes to Table 4.
Column 4	Column 2 of Table 4 less Column 3 of Table 4 divided by Column 1 of Table 4.
Column 5	Column 2 of Table 4 minus Column 5 of Table 4 divided by Column 1 of Table 4.

Table 6

The Burden of the Costs of Higher Education

Year	Instruction-Related Costs Per FTE Student (1)	GNP per Member of the Civilian Labor Force (2)	Instruction-Related Costs Per FTE Student Relative to GNP Per Member of the Civilian Labor Force (in percent).				
			Instruction-Related Costs (3)	Nonstudent Share (Total Instruction-Related Expenditures Less Tuition & Fees (4)	Gross Student Share: Tuition & Fees (5)	Student Share Net of Institutionally Administered Aid (6)	Net Student Share: Net of All Student Aid (7)
1947-48	523	3,956	13.2	5.6	7.6	7.1	-4.7
1957-58	1,128	6,741	16.7	10.9	5.8	5.1	2.3
1967-68	2,229	10,559	21.1	14.1	7.0	5.5	3.6
1972-73	2,592	13,943	18.6	12.4	6.2	4.8	-0.2
1980-81	4,519	25,557	17.7	11.6	6.1	5.0	-1.6
1984-85	6,178	32,273	19.1	11.9	7.3	6.0	0.7

Sources: Biennial Survey of Education
Financial Statistics of Higher Education
Economic Report of the President

Column 1: Calculated from Table 4 and Table 1.
Column 2: Calculated from data in Economic Report of the President, 1986.
Column 3: Column 1 divided by Column 2.
Columns 4 and 6 Calculated from Table 4, Table 1, and this Table.

Inventory of Alternative
Financing Methods for
Higher Education

Paper presented at the
Fourth Annual NASSGP/NCHELP
Student Financial Aid Research Network Conference
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St. Louis, Missouri

by

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EXECUTIVE SUMMARY

This paper lists some of the options for higher education financing that have received attention of late as alternatives to "traditional" grant/loan packaging. Included are prepaid tuition plans; "targeted" grants such as those designed to recruit math and science teachers or to encourage minorities entering the health professions; cooperative education and college work-study programs; part-time study grants; and employer assistance. Ramifications of federal tax reform for various aspects of the financial aid process are mentioned.

This paper looks at how postsecondary educational financing has evolved during the first half of the 1980s. During a period of retraction in federal funding, many states increased their contributions. Particularly noticeable was the introduction of state grant programs targeted at specific types of students such as part-time students or potential teachers. The decade was also marked by increases in institutional discretionary funding. However, as costs continued to rise, the family contribution from savings, earnings, student work, and/or loans has also expanded. Thus, except for the federal government, all of the major partners in educational financing have increased their contributions.

Changes in the environment have been accompanied by changes in packaging practices and techniques for counseling students. Increased levels of automation are noticeable in state agencies and on campuses. Computerized search firms advertise their ability to locate funding sources for individuals. Packaging is no longer as simple as "one grant, one loan, one work." Packages are more complex, tailored specifically to an individual's background and interests.

An attached inventory lists many of the non-loan funding sources available, both traditional need-based grants and more innovative programs. The creation of this list was motivated by several factors, including oft-voiced public concerns over debt burdens and defaults. The author, as Chair of the Research Committee of the National Association of State Scholarship & Grant Programs (NASSGP), focuses attention on non-loan sources of educational funding. While many seem to feel that "loans are where the action is," there are compelling societal and individual reasons why perhaps the action may not be where it should be.

Finally, there has been a surge of interest in innovative approaches to educational financing, as well as publications documenting such trends.

New federal regulations and the Reauthorization of the Higher Education Act have thrown the financial aid system into varying degrees of turmoil. Federal tax reform and resulting state compensatory changes have further impacted educational financing. The ramifications may even affect the fiscal stability of some institutions. While much of the news is bad for proponents of our nation's higher education and financial aid traditions, some of the emerging options may offer a degree of hope. At least, mechanisms for societal investment in the training and retraining of individuals are being subjected to thoughtful scrutiny.

The importance of early family financial planning for higher education is receiving widespread attention. A longer "window" for needs analysis has been introduced as one possible solution to the inappropriate shielding of assets by some families.[1] The interest in many quarters over "tuition futures" results from a favorable response by the public to the concept of structured mechanisms to keep family contributions manageable.

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[1] Case, Karl E. "Effect of Need-Based Student Aid on Parental Work Effort and Savings: Thinking about Ability to Pay in a Lifetime Income Model." Paper presented by Michael McPherson at the Third Annual NASSGP/NCHELP Research Network Conference, IL., May 1986.

New players are also entering the game. Various partnership concepts have engendered joint efforts by education, business, and civic groups. Some of these are designed to combat problems of educational attrition; others seek to increase the degree of congruence between education and occupation. Foundations may also support higher education directly, as occurred with a unique commitment by the Lilly foundation in the state of Indiana.[2]

While documenting these various trends, we should not forget how bewildering the conflicting crosscurrents in the financial aid field appear to the students who are supposed to be their ultimate beneficiaries. Even skilled financial aid officers find that "it's a whole new ball game; all of the rules have been changed." It's tough out there. If five years ago a typical financial aid package already resembled a bowl of alphabet soup, it now may rival the menu from an international restaurant. We should be cognizant of the possibility that at a certain point the system may simply collapse of its own weight. This is a disturbing prospect to those of us who still firmly believe that society's investment in the minds of its young and old people is both necessary and more prudent than the alternative.

Two comprehensive and useful reports were utilized in preparing the inventory. The first of these is the "18th Annual Survey Report" of the National Association of State Scholarship & Grant Programs (NASSGP), which covers the 1986-87 academic year.

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[2] Hall, William V. "Designing a Public-Private Partnership to Assist Students: A Case Study of The Lilly Endownment Educational Award Program." Paper presented at the Fourth Annual NASSGP/NCHELP Research Network Conference, St. Louis, MO., June 1987.

The second is a monograph by the National Association of College and University Business Officers (NACUBO), published in 1986 and entitled "Alternative Approaches to Tuition Financing: Making Tuition More Affordable." The author is also indebted to a number of members of the NASSGP/NCHELP Research Network who have made materials on new approaches to educational financing readily available.

Table 1

ESTIMATED TOTAL GRANT AID AWARDED BY STATE PROGRAMS, 1986-87, BY TYPES OF PROGRAMS

(AMOUNTS IN MILLIONS)

	Need-Based Aid		Non-Need-Based Aid		Other	Total
	Undergrads	Grads	Undergrads	Grads	Aid*	Grants
Alabama	$ 2.163	$ 0.048	$ 4.421	$ 0.020	$ 3.464	$ 9.936
Alaska	(0.241)			(1.834)		(2.075)
Arizona	2.376	0.099				2.475
Arkansas	5.145		0.558			5.703
California	131.146	3.479				134.625
Colorado	9.470	0.834	7.861	1.096		19.261
Connecticut	12.028			0.200	6.900	19.128
Delaware	0.765	0.085	0.203	0.028	0.240	1.321
District of Columbia	1.059	**				1.059
Florida	15.311	0.003	19.366	0.662	0.174	35.516
Georgia	4.734		12.049		1.754	18.537
Hawaii	0.597				2.000	2.597
Idaho	0.487		0.123			0.610
Illinois	132.862		10.217		4.355	147.434
Indiana	40.492		0.410	0.150		41.052
Iowa	22.498		0.900		2.750	26.148
Kansas	5.430					5.430
Kentucky	11.583				0.650	12.233
Louisiana	1.447		0.759	0.089		2.295
Maine	1.161				0.971	2.132
Maryland	7.214	0.941	1.560	0.141		9.856
Massachusetts	57.072	3.470	1.960		21.417	83.919
Michigan	66.943	3.351	1.072			71.366
Minnesota	59.706				2.640	62.346
Mississippi	1.230		0.545	0.280		2.055
Missouri	10.081				0.210	10.291
Montana	0.401					0.401
Nebraska	1.093					1.093
Nevada	(0.414)	**				(0.414)
New Hampshire	0.656	0.001	0.125		0.641	1.423
New Jersey	65.711	0.683	1.967	0.600	0.750	69.711
New Mexico	(1.461)					(1.461)
New York	417.526	10.424	25.101	4.500		457.551
North Carolina	4.397	1.218	20.929		18.406	44.950
North Dakota	0.748					0.748
Ohio	48.500		18.739	0.108	5.500	72.847
Oklahoma	9.450	0.895	0.165	0.287	8.998	19.795
Oregon	9.224				1.505	10.729
Pennsylvania	103.428		0.720			104.148
Rhode Island	8.412					8.412

	Need-Based Aid		Non-Need-Based Aid		Other	Total
	Undergrads	Grads	Undergrads	Grads	Aid*	Grants
South Carolina	$ 16.415				$ 1.381	$ 17.796
South Dakota	0.563	**	$ 0.057			0.620
Tennessee	13.735	-	0.052			13.787
Texas	20.293	$ 1.711			56.552	78.556
Utah	1.641	**	0.572	$ 0.792	6.130	9.135
Vermont	8.106	0.150			0.181	8.437
Virginia	4.350		13.777	1.006		19.133
Washington	10.491		0.028		0.146	10.665
West Virginia	5.203				3.668	8.871
Wisconsin	30.908				1.500	32.408
Wyoming	(0.204)	(0.036)				(0.240)
Puerto Rico	12.248	**				12.248
Totals	$1,398.819	$27.428	$144.056	$11.793	$152.883	$1,734.979
Percent	80.6%	1.6%	8.3%	0.7%	8.8%	100.0%

* Aid reported under this heading includes grant aid administered by other state agencies, tuition fee waiver programs administered by state and institutions, special programs for veterans, matching programs, etc.

**Reported a grant program for graduate students but could not report dollars awarded. Amounts are included in undergraduate figures for these states.

Figures in ( ) are 1985-86 data.

Source: National Association of State Scholarship & Grant Programs (NASSGP) 18th Annual Survey Report. Pennsylvania Higher Education Assistance Agency, Harrisubrg, PA., January 1987. Table 1 on pages 13-14; reprinted by permission.

NEW STATE GRANT PROGRAMS

- 39 new state grant programs, including 12 need-based programs, have been implemented since 1983-84. Awards totalling $58.4 million were available for the 1986-87 academic year. Several of the programs targeted specific student groups such as part-time students (NY, MA, MI) or Vietnam Veterans (NY, NJ).
- 10 states implemented 11 new non-need-based general scholarship programs for undergraduates since 1983-84. These were expected to award more than $8 million in 1986-87.
- 8 new programs (one need-based) aimed at prospective teachers began in 6 states with an estimated $2.1 million in funding.
- 3 grant programs providing $3.7 million in non-need-based aid to health services and professional students began in New York.
- 3 states expect to award need-based and non-need-based aid totalling $2 million through 4 new programs for graduate students.
- 3 states began need-based aid programs worth a total of $1.5 million targeted at minority, low-income, and non-degree students (WI, MI, VT respectively).
- 3 states have introduced new need-based scholarships for undergraduates worth a total of $510,000.

Source: National Association of State Scholarship & Grant Programs (NASSGP) 18th Annual Survey Report. Pennsylvania Higher Education Assistance Agency, Harrisburg, PA., January 1987.

NON-LOAN PAYMENT OPTIONS AVAILABLE AT INSTITUTIONS

ACCELERATED PAYMENT PLANS

- Prepayment Plans
- Tuition Stabilization Plans
- Tuition Futures
- Tuition Gift Certificates

DELAYED PAYMENT PLANS

- Installment Plans

PRICING AND DISCOUNTED PAYMENT PLANS

- Differential Pricing
- Retention Plans
- Performance Plans
- Volume Discounts
- Lotteries
- Tuition Matching
- Employee Discounts

OTHER TECHNIQUES

- Electronic Funds Transfer
- Work Programs

Source: National Association of College and University Business Offices (NACUBO). "Alternative Approaches to Tuition Financing: Making Tuition More Affordable." Washington, D.C., 1986.

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Simulating a State Guaranteed Tuition Plan: New Jersey Proposal

Lutz K. Berkner

Office of Student Assistance

New Jersey Department of Higher Education

XVI

New Jersey Is An Equal Opportunity Employer

EXECUTIVE SUMMARY

The costs and risks of a tuition prepayment plan can be allocated among the individual participants, the colleges, and the state in many different ways. The effects of a New Jersey proposal (S-3377) are simulated with varying assumptions about average tuition increases, rates of return, withdrawal rates from the program, age distribution of participants, and size of annual payments. It is shown that the plan can reimburse colleges for 90% or more of actual tuition charged as long as the tuition increases average less than two percentage points above average investment earnings. Since 1967, the difference between ten-year average tuition increases and government bond yields has in fact always been below two percentage points.

Simulating a State Guaranteed Tuition Plan: New Jersey Proposal

Lutz K. Berkner
Office of Student Assistance
New Jersey Department of Higher Education

Costs and Risks of Prepayment Plans

The central problem in designing a guaranteed tuition plan is how it should be financed. The two basic financing issues are: 1) who is to pay for the costs if tuition rates increase faster than rates of return? 2) who should share in the risks?

In order to be successful, the plan must be equally attractive to both individuals and colleges, and this will happen only if they share the costs and the risks in return for certain assurances. The individual participant should be assured that the plan can offer a return (in tuition value) that is greater than the return available through individual investments. The colleges must be assured that the tuition revenue from the fund can cover an acceptable threshold of their actual tuition charges.

A plan can be structured so that the costs are paid by one or a combination of the following:

1. The colleges can bear the cost by being required to accept as payment for tuition whatever the plan fund has earned.

2. The participants can be required to pay for it by paying a premium above current tuition levels. This will normally happen in any plan that sets payments based on conservative actuarial assumptions which will tend to overestimate tuition increases and underestimate investment returns.

3. The participants who withdraw from the plan and do not claim their tuition benefits can be required to pay for it through penalties which restrict the amount of the refund.

4. The state can pay for it through subsidies or guarantees.

The issue of who pays the cost is closely related to the issue of who shares the risk of financial loss. The risk to participating individuals depends primarily on withdrawal rights. If participants can withdraw both their principal and the full investment earnings from the plan fund, then there is no risk to them (except that the return might have been higher elsewhere). If they want tax-free benefits, they must accept the risk of losing their earnings if the tuition benefit is not claimed. The risk to the colleges is that the plan fund will not be able to earn enough to reimburse them for an acceptable percentage of the actual tuition charged. This institutional risk can be reduced by structuring the plan to retain all or part of the earnings of those who withdraw and requiring the payment of a premium on current tuition.

The New Jersey Guaranteed College Tuition Plan Proposal

Many of the state plans under discussion make the implicit assumption that the colleges will be paid 100% of their actual tuition charges. This is to be achieved through the determination of "actuarially sound" payment schedules. What this will mean in practice is that future tuition increases must be projected and these must then be "discounted" at the expected rates of investment return. If the return is expected to be below tuition increases, the payments required will be greater than current tuition.

In the New Jersey proposal currently under discussion the risks and costs are shared by the participants and the colleges. The main features are:

- participants buy any number of college credits at the actual current price; their guarantee is that they can claim the use of these credits at any time in the future, no matter what the price per credit is then.

- the colleges are guaranteed reimbursement of 90% of the actual per credit tuition charged when the pre-purchased credits are claimed; if investment returns allow, they may receive up to 100% reimbursement.

- participants who withdraw without claiming their pre-paid credits are required to contribute to the cost of the program. Under option A those who withdraw are refunded principal plus interest, but at a rate below the fund's average return. Under option B only the principal may be withdrawn, but the benefits are expected to be tax-exempt and tuition may be purchased at a 5%-10% discount.

Simulation of Annual Costs

The attached tables show the results of a model which simulates the proposed New Jersey Guaranteed College Tuition Plan (option A which allows withdrawals with interest) using the following assumptions:

- 1,000 participants enroll in the plan each year for 20 years, their ages at enrollment are uniformly distributed from birth through 14, the maximum age for entry. They make an annual payment every year they are in the plan until they are 18, at which point they claim the tuition benefit or withdraw the principal plus earnings 2% below the average return on the fund.

- the ages of each entering cohort of participants are assumed to be uniformly distributed, 1/15 or 67 from each cohort reach age 18 after 4 years (since the maximum age at entry is 14) and every succeeding year for 15 years. The plan reaches stability after 19 years when 67 participants from each of the first 15 entering cohorts (67 x 15 = 1,000 roughly) leave the plan.

- participants will be in the plan for an average of 11 years (median age of entry of 7 plus four years of participation after age 14).

- the annual tuition purchases are fixed for each cohort. They start at $1,000 for the first year of the plan and are increased for each cohort at the same rate as the average tuition increase.

The numbers at the top half of the table for each "entry year" into the program show the 18-year averages and totals for each cohort of participants from birth to age 14 who enter the plan in the same year, and who will therefore take from 4 to 18 years to claim their tuition benefit. The numbers on the bottom half of the table for each "exit year" represent the costs actually incurred in each future year. The first pay-out costs to the plan are incurred in year 5, when only those who were 14 years old in year 1 go to college. The model reaches stability after year 18. Since no new participants are added after year 20 the number of claims drops until year 38 when the last one-year-olds who joined in year 20 go to college.

Column legend:

A	The entry year of each cohort of 1,000 participants into the plan.
B	The exit year from the plan when participants reach 18.
C	The number of participants entering or leaving the plan each year.
D	The average number of years that payments were made to purchase tuition (assumes a payment every year).
E	The average annual dollar payment (assumed to be fixed for each cohort).
F	The total dollar amount of the payments (in millions) which the participants contributed.
G	The total pre-paid tuition benefits (in millions) claimed by those who matriculate (70% assumed). This is the actual value of the pre-paid credits the year they are claimed.
H	The plan funds available to pay the tuition benefits (total of all payments plus investment return minus the principal and a 2% lower return for non-matriculants).

I	The cost of the guaranteed tuition to the colleges (the difference between tuition benefits claimed and plan funds paid out).
J	The percentage of actual tuition price which could be paid out of plan funds to reimburse the colleges.
K	The (inflated) dollar value of the average pre-paid tuition benefit.
L,M,N	The number of years of college enrollment that the tuition benefit is worth at a state college, Rutgers University and an independent college (average).

Table 1 simulates a 8% annual tuition growth, a 7% average annual investment return, and 70% of the participants matriculating at a New Jersey college. In year 1 the first cohort of one thousand participants enter the plan. Since their ages are uniformly distributed (67 are age 1, 67 are age 2, etc.) and they make a payment each year, they will make an average of 11 payments (median age 7 plus four years after age 14) of $1,000 each. The total amount paid by the cohort after 18 years is $11 million. The total tuition benefit claimed is $13.8 million, which represents the sum of the actual value of the pre-paid credits the years that they are claimed by the 70% of the participants who matriculate.

The plan fund will collect and earn $13.6 million from this cohort (principal plus 7% earnings from 70%, plus 2% earnings from the 30% who withdraw). The cost of the plan to the colleges is $257,000, the difference between the value of the tuition benefit claimed and the plan funds; the plan could reimburse the colleges for 98% of actual tuition. The average tuition benefit received over 15 years was $19,750. This would have bought 5.8 years of tuition at a state college, 4.0 years at Rutgers, or 1.2 years at an independent college. Those choosing the state colleges would have paid in less; those choosing an independent institution would need to pay in more.

The value of the tuition benefits in terms of "tuition-years" and the percentage of the tuition covered by the plan is the same for all entering cohorts. The absolute dollar values, however, keep growing at 8% per year. The bottom half of the table shows the same information for each group of participants who reach age 18 and leave the plan. In year 5 only the 67 who entered at age 14 in year 1 leave the plan. They have paid an average of $1,000 for four years, which is enough to buy 2.6 years of tuition at a state college. Each year the oldest members of the next cohort leave the plan until year 19 when there are 1,000 entering and also 1,000 leaving, so the plan attains stability.

During the first four years of the plan there are no costs, since the 14-year olds who entered in year 1 will not go to college until year 5. During the first 10-15 years, the costs will be relatively low; during years 19-24, the plan attains stability; after year 24 the costs rise because no new participants are being added to the simulation.

Evaluating the Potential Costs

The cost to the colleges will be determined by the long-run difference between the average rate of tuition increase and the average rate of return on investment to the plan fund (the "point spread" between tuition rates and interest rates). Currently, the return on ten-year Treasury bonds is between 7-9 percent, while average New Jersey college tuition has also been increasing by 7-9 percent annually over the past five years. Although several colleges are considering increases higher than this in the next few years, such high rates of tuition growth cannot be sustained over a long period of time, and it is unlikely that the average spread will exceed two points in the long run. Under either withdrawal option, the Plan should be able to pay the colleges over 90% of actual tuition even if the rate of return on investment averages two percentage points below tuition growth.

It is important not to confuse the issue by looking at inflation instead of investment returns. If we compare the ten-year moving average of New Jersey tuition since 1967 with 10-year moving average U.S. bond yields, even without compounding, has never averaged as much as 2 points below tuition.

The financial impact of the proposed Plan on the participating colleges is difficult to specify or to interpret in absolute dollars, because the full costs of the program will not occur for several decades, during which time inflation will totally change our current conception of the value of a dollar. Participants can enroll in the plan at any age below 15, but cannot normally claim the tuition benefits until age 18; therefore participants can be in the plan anywhere from 4 to 18 years or later before maturity. If about the same number of participants enter the plan each year, and their ages are about evenly distributed, then it will take 18 years before the full costs of the plan are realized. If tuition actually continued to increase annually at the current rate of about 8% during that time, the colleges would be charging four times as much as today. Therefore, the potential costs of the plan to the colleges can best be understood in relative terms, as the percentage of actual future tuition that the Plan will be able to reimburse to the colleges.

The last group of tables show the results of simulations with different combinations of tuition and interest rates assuming that either 70 percent or 80 percent of the participants will actually claim the tuition benefits and matriculate in a New Jersey college. Under the tax-free option (B), the plan fund retains all the earnings of those who do not matriculate. In this example the taxable option (A) assumes withdrawal of principal plus interest earnings at a rate 2% below the average rate of return.

In Table A, the columns show the average annual rate of tuition growth, while the rows show the average annual rate of return on investment. The numbers in the boxes show the redemption value of the policies as a percentage of actual tuition when the rate of return is equal to or less than tuition growth. For example, if we expect 70% matriculation, a 7% return, and a 9% tuition growth, then the redemption value will cover 91% of actual tuition.

Table B employs the same analytic approach, but arranges the results according to the percentage "point spread" between tuition growth and rate of return. Note that with option A, the *level* of tuition and return has a minimal effect. The percentage of tuition covered depends only on the point spread.

Under both options, the plan covers an additional 2% of actual tuition for every 10% increase in the withdrawal rate.

Additional tables show that if the size of the payments is increased every year (instead of remaining fixed for each cohort), the plan fund will perform better with larger point spreads.

The plan also performs significantly better with an older age distribution than a younger one, if the point spread is over 1%.

TABLE 1

NEW JERSEY GUARANTEED TUITION PLAN: OPTION A

8% TUITION GROWTH 7% INVESTMENT RETURN 70% NJ MATRICULATION
SAVINGS WITHDRAWL 2% BELOW RETURN / NO PREMIUM
PAYMENTS FIXED AT ENTRY YEAR TO RECEIVE $1000 TUITION AT 1986 PRICES

(A) ENTRY YEAR	(B) EXIT YEAR	(C) NUMBER	(D)AVG YRS PAID	(E)AVG YRLY PAYT	(F)TOTAL PAID IN $MIL	(G)TUITION CLAIMS $MIL	(H)PLAN PAYOUT $MIL	(I)PLAN COST $MIL	(J)PCT OF TUITION COVERED	(K)AVG $ TUITION CLAIM	(L)TUITION YRS VALUE STATE C	(M)TUITION YRS VALUE RUTGERS	(N)TUITION YRS VALUE INDEPNDT
1	.	1000	11.0	1000	11.0	13.8	13.6	0.257	0.98	19,750	5.8	4.0	1.2
2	.	1000	11.0	1080	11.9	14.9	14.7	0.277	0.98	21,330	5.8	4.0	1.2
3	.	1000	11.0	1170	12.8	16.1	15.8	0.302	0.98	23,030	5.8	4.0	1.2
4	.	1000	11.0	1260	13.9	17.4	17.1	0.325	0.98	24,870	5.8	4.0	1.2
5	.	1000	11.0	1360	15.0	18.8	18.5	0.350	0.98	26,870	5.8	4.0	1.2
6	.	1000	11.0	1470	16.2	20.3	19.9	0.380	0.98	29,010	5.8	4.0	1.2
7	.	1000	11.0	1590	17.5	21.9	21.5	0.410	0.98	31,340	5.8	4.0	1.2
8	.	1000	11.0	1710	18.9	23.7	23.2	0.442	0.98	33,840	5.8	4.0	1.2
9	.	1000	11.0	1850	20.4	25.6	25.1	0.478	0.98	36,550	5.8	4.0	1.2
10	.	1000	11.0	2000	22.0	27.6	27.1	0.515	0.98	39,470	5.8	4.0	1.2
11	.	1000	11.0	2160	23.7	29.8	29.3	0.556	0.98	42,630	5.8	4.0	1.2
12	.	1000	11.0	2330	25.6	32.2	31.6	0.602	0.98	46,040	5.8	4.0	1.2
13	.	1000	11.0	2520	27.7	34.8	34.2	0.649	0.98	49,720	5.8	4.0	1.2
14	.	1000	11.0	2720	29.9	37.6	36.9	0.700	0.98	53,700	5.8	4.0	1.2
15	.	1000	11.0	2940	32.3	40.6	39.8	0.756	0.98	58,000	5.8	4.0	1.2
16	.	1000	11.0	3170	34.9	43.8	43.0	0.818	0.98	62,640	5.8	4.0	1.2
17	.	1000	11.0	3430	37.7	47.4	46.5	0.884	0.98	67,650	5.8	4.0	1.2
18	.	1000	11.0	3700	40.7	51.1	50.2	0.954	0.98	73,060	5.8	4.0	1.2
19	.	1000	11.0	4000	44.0	55.2	54.2	1.028	0.98	78,910	5.8	4.0	1.2
20	.	1000	11.0	4320	47.5	59.7	58.5	1.111	0.98	85,220	5.8	4.0	1.2
.	5	67	4.0	1000	0.3	0.2	0.2	0.001	1.00	4,870	2.6	1.8	0.5
.	6	133	4.5	1040	0.6	0.5	0.5	0.002	1.00	5,800	2.9	2.0	0.6
.	7	200	5.0	1070	1.1	1.0	0.9	0.005	0.99	6,810	3.1	2.1	0.6
.	8	267	5.5	1110	1.6	1.5	1.5	0.009	0.99	7,930	3.3	2.3	0.7
.	9	333	6.0	1140	2.3	2.1	2.1	0.014	0.99	9,150	3.6	2.5	0.7
.	10	400	6.5	1180	3.1	2.9	2.9	0.022	0.99	10,480	3.8	2.6	0.8
.	11	467	7.0	1220	4.0	3.9	3.9	0.032	0.99	11,940	4.0	2.8	0.8
.	12	533	7.5	1260	5.0	5.1	5.0	0.046	0.99	13,530	4.2	2.9	0.9
.	13	600	8.0	1300	6.2	6.4	6.3	0.065	0.99	15,260	4.4	3.0	0.9
.	14	667	8.5	1340	7.6	8.0	7.9	0.089	0.99	17,160	4.6	3.2	0.9
.	15	733	9.0	1390	9.1	9.9	9.7	0.119	0.99	19,220	4.7	3.3	1.0
.	16	800	9.5	1430	10.9	12.0	11.9	0.158	0.99	21,480	4.9	3.4	1.0
.	17	867	10.0	1480	12.8	14.5	14.3	0.206	0.99	23,930	5.1	3.5	1.0
.	18	933	10.5	1530	15.0	17.4	17.1	0.266	0.98	26,600	5.2	3.6	1.1
.	19	1000	11.0	1580	17.4	20.7	20.3	0.340	0.98	29,510	5.3	3.7	1.1
.	20	1000	11.0	1710	18.8	22.3	21.9	0.368	0.98	31,870	5.3	3.7	1.1
.	21	1000	11.0	1840	20.3	24.1	23.7	0.397	0.98	34,420	5.3	3.7	1.1
.	22	1000	11.0	1990	21.9	26.0	25.6	0.429	0.98	37,170	5.3	3.7	1.1
.	23	1000	11.0	2150	23.6	28.1	27.6	0.464	0.98	40,150	5.3	3.7	1.1
.	24	1000	11.0	2320	25.5	30.4	29.9	0.500	0.98	43,360	5.3	3.7	1.1
.	25	933	11.5	2450	26.3	31.7	31.2	0.536	0.98	48,550	5.5	3.8	1.1
.	26	867	12.0	2580	26.9	32.9	32.3	0.572	0.98	54,200	5.7	4.0	1.2
.	27	800	12.5	2720	27.2	33.8	33.2	0.607	0.98	60,330	5.9	4.1	1.2
.	28	733	13.0	2850	27.2	34.4	33.8	0.639	0.98	67,000	6.1	4.2	1.3
.	29	667	13.5	2980	26.8	34.6	34.0	0.668	0.98	74,240	6.2	4.3	1.3
.	30	600	14.0	3120	26.2	34.5	33.8	0.692	0.98	82,110	6.4	4.4	1.3
.	31	533	14.5	3260	25.2	33.8	33.1	0.706	0.98	90,650	6.5	4.5	1.3
.	32	467	15.0	3400	23.8	32.6	31.9	0.710	0.98	99,910	6.7	4.6	1.4
.	33	400	15.5	3540	21.9	30.8	30.1	0.699	0.98	109,970	6.8	4.7	1.4
.	34	333	16.0	3690	19.7	28.2	27.5	0.668	0.98	120,880	6.9	4.8	1.4
.	35	267	16.5	3840	16.9	24.8	24.2	0.612	0.98	132,710	7.0	4.8	1.4
.	36	200	17.0	3990	13.6	20.4	19.9	0.525	0.97	145,550	7.1	4.9	1.5
.	37	133	17.5	4150	9.7	14.9	14.5	0.400	0.97	159,470	7.2	5.0	1.5
.	38	67	18.0	4320	5.2	8.1	7.9	0.229	0.97	174,550	7.3	5.1	1.5

TABLE 2
NEW JERSEY GUARANTEED TUITION PLAN: OPTION A

9% TUITION GROWTH 7% INVESTMENT RETURN 70% NJ MATRICULATION
SAVINGS WITHDRAWL 2% BELOW RETURN / NO PREMIUM
PAYMENTS FIXED AT ENTRY YEAR TO RECEIVE $1000 TUITION AT 1986 PRICES

(A) ENTRY YEAR	(B) EXIT YEAR	(C) NUMBER	(D)AVG YRS PAID	(E)AVG YRLY PAYT	(F)TOTAL PAID IN $MIL	(G)TUITION CLAIMS $MIL	(H)PLAN PAYOUT $MIL	(I)PLAN COST $MIL	(J)PCT OF TUITION COVERED	(K)AVG $ TUITION CLAIM	(L)TUITION YRS VALUE STATE C	(M)TUITION YRS VALUE RUTGERS	(N)TUITION YRS VALUE INDEPNDT
1	.	1000	11.0	1000	11.0	14.9	13.6	1.382	0.91	21,350	5.5	3.8	1.1
2	.	1000	11.0	1090	12.0	16.3	14.8	1.507	0.91	23,280	5.5	3.8	1.1
3	.	1000	11.0	1190	13.1	17.8	16.1	1.644	0.91	25,370	5.5	3.8	1.1
4	.	1000	11.0	1300	14.2	19.4	17.6	1.789	0.91	27,650	5.5	3.8	1.1
5	.	1000	11.0	1410	15.5	21.1	19.1	1.952	0.91	30,140	5.5	3.8	1.1
6	.	1000	11.0	1540	16.9	23.0	20.9	2.125	0.91	32,850	5.5	3.8	1.1
7	.	1000	11.0	1680	18.4	25.1	22.7	2.318	0.91	35,810	5.5	3.8	1.1
8	.	1000	11.0	1830	20.1	27.3	24.8	2.527	0.91	39,030	5.5	3.8	1.1
9	.	1000	11.0	1990	21.9	29.8	27.0	2.753	0.91	42,550	5.5	3.8	1.1
10	.	1000	11.0	2170	23.9	32.5	29.5	3.000	0.91	46,370	5.5	3.8	1.1
11	.	1000	11.0	2370	26.0	35.4	32.1	3.273	0.91	50,550	5.5	3.8	1.1
12	.	1000	11.0	2580	28.4	38.6	35.0	3.566	0.91	55,100	5.5	3.8	1.1
13	.	1000	11.0	2810	30.9	42.0	38.2	3.886	0.91	60,060	5.5	3.8	1.1
14	.	1000	11.0	3070	33.7	45.8	41.6	4.237	0.91	65,460	5.5	3.8	1.1
15	.	1000	11.0	3340	36.8	49.9	45.3	4.616	0.91	71,350	5.5	3.8	1.1
16	.	1000	11.0	3640	40.1	54.4	49.4	5.034	0.91	77,780	5.5	3.8	1.1
17	.	1000	11.0	3970	43.7	59.3	53.9	5.487	0.91	84,780	5.5	3.8	1.1
18	.	1000	11.0	4330	47.6	64.7	58.7	5.978	0.91	92,400	5.5	3.8	1.1
19	.	1000	11.0	4720	51.9	70.5	64.0	6.518	0.91	100,720	5.5	3.8	1.1
20	.	1000	11.0	5140	56.6	76.9	69.7	7.105	0.91	109,790	5.5	3.8	1.1
.	5	67	4.0	1000	0.3	0.2	0.2	0.006	0.97	4,990	2.5	1.7	0.5
.	6	133	4.5	1040	0.6	0.6	0.5	0.017	0.97	5,980	2.8	1.9	0.6
.	7	200	5.0	1080	1.1	1.0	1.0	0.034	0.97	7,080	3.0	2.1	0.6
.	8	267	5.5	1120	1.6	1.5	1.5	0.059	0.96	8,290	3.3	2.2	0.7
.	9	333	6.0	1160	2.3	2.2	2.2	0.094	0.96	9,640	3.5	2.4	0.7
.	10	400	6.5	1210	3.1	3.1	3.0	0.142	0.95	11,120	3.7	2.5	0.8
.	11	467	7.0	1250	4.1	4.2	4.0	0.206	0.95	12,750	3.9	2.7	0.8
.	12	533	7.5	1300	5.2	5.4	5.1	0.290	0.95	14,560	4.0	2.8	0.8
.	13	600	8.0	1340	6.5	6.9	6.5	0.399	0.94	16,540	4.2	2.9	0.9
.	14	667	8.5	1390	7.9	8.7	8.2	0.538	0.94	18,730	4.4	3.0	0.9
.	15	733	9.0	1450	9.5	10.9	10.1	0.713	0.93	21,140	4.5	3.1	0.9
.	16	800	9.5	1500	11.4	13.3	12.4	0.931	0.93	23,790	4.7	3.2	1.0
.	17	867	10.0	1560	13.5	16.2	15.0	1.200	0.93	26,700	4.8	3.3	1.0
.	18	933	10.5	1620	15.8	19.5	18.0	1.532	0.92	29,900	5.0	3.4	1.0
.	19	1000	11.0	1680	18.5	23.4	21.5	1.936	0.92	33,420	5.1	3.5	1.0
.	20	1000	11.0	1830	20.1	25.5	23.4	2.111	0.92	36,430	5.1	3.5	1.0
.	21	1000	11.0	2000	21.9	27.8	25.5	2.300	0.92	39,710	5.1	3.5	1.0
.	22	1000	11.0	2170	23.9	30.3	27.8	2.507	0.92	43,280	5.1	3.5	1.0
.	23	1000	11.0	2370	26.1	33.0	30.3	2.733	0.92	47,180	5.1	3.5	1.0
.	24	1000	11.0	2580	28.4	36.0	33.0	2.979	0.92	51,430	5.1	3.5	1.0
.	25	933	11.5	2750	29.5	37.9	34.7	3.211	0.92	58,060	5.3	3.6	1.1
.	26	867	12.0	2910	30.3	39.6	36.2	3.443	0.91	65,350	5.4	3.8	1.1
.	27	800	12.5	3070	30.7	41.1	37.4	3.667	0.91	73,330	5.6	3.9	1.2
.	28	733	13.0	3240	30.9	42.1	38.3	3.876	0.91	82,090	5.7	4.0	1.2
.	29	667	13.5	3410	30.7	42.8	38.7	4.058	0.91	91,690	5.9	4.1	1.2
.	30	600	14.0	3580	30.1	42.9	38.7	4.202	0.90	102,200	6.0	4.2	1.2
.	31	533	14.5	3760	29.1	42.5	38.2	4.293	0.90	113,730	6.1	4.2	1.3
.	32	467	15.0	3940	27.6	41.3	37.0	4.311	0.90	126,350	6.3	4.3	1.3
.	33	400	15.5	4120	25.6	39.2	35.0	4.235	0.89	140,160	6.4	4.4	1.3
.	34	333	16.0	4310	23.0	36.2	32.2	4.040	0.89	155,290	6.5	4.5	1.3
.	35	267	16.5	4510	19.8	32.1	28.4	3.695	0.88	171,850	6.6	4.5	1.4
.	36	200	17.0	4710	16.0	26.6	23.4	3.164	0.88	189,960	6.7	4.6	1.4
.	37	133	17.5	4920	11.5	19.6	17.2	2.405	0.88	209,790	6.8	4.7	1.4
.	38	67	18.0	5140	6.2	10.8	9.4	1.370	0.87	231,470	6.8	4.7	1.4

TABLE 3
NEW JERSEY GUARANTEED TUITION PLAN: OPTION A

10% TUITION GROWTH 7% INVESTMENT RETURN 70% NJ MATRICULATION
SAVINGS WITHDRAWL 2% BELOW RETURN / NO PREMIUM
PAYMENTS FIXED AT ENTRY YEAR TO RECEIVE $1000 TUITION AT 1986 PRICES

(A) ENTRY YEAR	(B) EXIT YEAR	(C) NUMBER	(D)AVG YRS PAID	(E)AVG YRLY PAYT	(F)TOTAL PAID IN $MIL	(G)TUITION CLAIMS $MIL	(H)PLAN PAYOUT $MIL	(I)PLAN COST $MIL	(J)PCT OF TUITION COVERED	(K)AVG $ TUITION CLAIM	(L)TUITION YRS VALUE STATE C	(M)TUITION YRS VALUE RUTGERS	(N)TUITION YRS VALUE INDEPNDT
1	.	1000	11.0	1000	11.0	16.2	13.6	2.615	0.84	23,110	5.3	3.7	1.1
2	.	1000	11.0	1100	12.1	17.8	14.9	2.877	0.84	25,430	5.3	3.7	1.1
3	.	1000	11.0	1210	13.3	19.6	16.4	3.165	0.84	27,970	5.3	3.7	1.1
4	.	1000	11.0	1330	14.6	21.5	18.1	3.480	0.84	30,760	5.3	3.7	1.1
5	.	1000	11.0	1460	16.1	23.7	19.9	3.829	0.84	33,840	5.3	3.7	1.1
6	.	1000	11.0	1610	17.7	26.1	21.8	4.211	0.84	37,220	5.3	3.7	1.1
7	.	1000	11.0	1770	19.5	28.7	24.0	4.631	0.84	40,950	5.3	3.7	1.1
8	.	1000	11.0	1950	21.4	31.5	26.4	5.096	0.84	45,040	5.3	3.7	1.1
9	.	1000	11.0	2140	23.6	34.7	29.1	5.604	0.84	49,540	5.3	3.7	1.1
10	.	1000	11.0	2360	25.9	38.1	32.0	6.164	0.84	54,500	5.3	3.7	1.1
11	.	1000	11.0	2590	28.5	42.0	35.2	6.780	0.84	59,950	5.3	3.7	1.1
12	.	1000	11.0	2850	31.4	46.2	38.7	7.458	0.84	65,940	5.3	3.7	1.1
13	.	1000	11.0	3140	34.5	50.8	42.6	8.204	0.84	72,540	5.3	3.7	1.1
14	.	1000	11.0	3450	38.0	55.9	46.8	9.024	0.84	79,790	5.3	3.7	1.1
15	.	1000	11.0	3800	41.8	61.4	51.5	9.928	0.84	87,770	5.3	3.7	1.1
16	.	1000	11.0	4180	46.0	67.6	56.7	10.920	0.84	96,550	5.3	3.7	1.1
17	.	1000	11.0	4600	50.5	74.3	62.3	12.012	0.84	106,200	5.3	3.7	1.1
18	.	1000	11.0	5050	55.6	81.8	68.6	13.216	0.84	116,820	5.3	3.7	1.1
19	.	1000	11.0	5560	61.2	90.0	75.4	14.536	0.84	128,510	5.3	3.7	1.1
20	.	1000	11.0	6120	67.3	99.0	83.0	15.991	0.84	141,360	5.3	3.7	1.1
.	5	67	4.0	1000	0.3	0.2	0.2	0.012	0.95	5,110	2.5	1.7	0.5
.	6	133	4.5	1040	0.6	0.6	0.5	0.032	0.94	6,170	2.7	1.9	0.6
.	7	200	5.0	1090	1.1	1.0	1.0	0.064	0.94	7,350	2.9	2.0	0.6
.	8	267	5.5	1140	1.7	1.6	1.5	0.112	0.93	8,670	3.2	2.2	0.7
.	9	333	6.0	1180	2.4	2.4	2.2	0.179	0.92	10,150	3.4	2.3	0.7
.	10	400	6.5	1230	3.2	3.3	3.0	0.271	0.92	11,790	3.6	2.5	0.7
.	11	467	7.0	1280	4.2	4.5	4.1	0.395	0.91	13,620	3.7	2.6	0.8
.	12	533	7.5	1340	5.3	5.8	5.3	0.558	0.90	15,660	3.9	2.7	0.8
.	13	600	8.0	1390	6.7	7.5	6.8	0.769	0.90	17,930	4.1	2.8	0.8
.	14	667	8.5	1450	8.2	9.5	8.5	1.040	0.89	20,440	4.2	2.9	0.9
.	15	733	9.0	1510	10.0	11.9	10.5	1.383	0.88	23,240	4.3	3.0	0.9
.	16	800	9.5	1570	12.0	14.8	12.9	1.812	0.88	26,350	4.5	3.1	0.9
.	17	867	10.0	1640	14.2	18.1	15.7	2.346	0.87	29,790	4.6	3.2	1.0
.	18	933	10.5	1710	16.8	22.0	19.0	3.005	0.86	33,620	4.7	3.3	1.0
.	19	1000	11.0	1790	19.7	26.5	22.7	3.812	0.86	37,860	4.8	3.3	1.0
.	20	1000	11.0	1970	21.6	29.2	25.0	4.193	0.86	41,640	4.8	3.3	1.0
.	21	1000	11.0	2160	23.8	32.1	27.5	4.612	0.86	45,810	4.8	3.3	1.0
.	22	1000	11.0	2380	26.2	35.3	30.2	5.073	0.86	50,390	4.8	3.3	1.0
.	23	1000	11.0	2620	28.8	38.8	33.2	5.580	0.86	55,430	4.8	3.3	1.0
.	24	1000	11.0	2880	31.7	42.7	36.5	6.138	0.86	60,970	4.8	3.3	1.0
.	25	933	11.5	3080	33.0	45.3	38.7	6.671	0.85	69,410	5.0	3.5	1.0
.	26	867	12.0	3280	34.1	47.8	40.6	7.210	0.85	78,740	5.2	3.6	1.1
.	27	800	12.5	3480	34.8	49.9	42.1	7.738	0.84	89,080	5.3	3.7	1.1
.	28	733	13.0	3690	35.1	51.6	43.4	8.238	0.84	100,510	5.4	3.8	1.1
.	29	667	13.5	3900	35.1	52.8	44.1	8.688	0.84	113,160	5.6	3.9	1.2
.	30	600	14.0	4110	34.5	53.4	44.3	9.058	0.83	127,140	5.7	3.9	1.2
.	31	533	14.5	4330	33.5	53.2	43.9	9.313	0.83	142,590	5.8	4.0	1.2
.	32	467	15.0	4560	31.9	52.2	42.7	9.412	0.82	159,670	5.9	4.1	1.2
.	33	400	15.5	4800	29.7	50.0	40.7	9.305	0.81	178,530	6.0	4.2	1.2
.	34	333	16.0	5040	26.9	46.5	37.6	8.929	0.81	199,370	6.1	4.2	1.3
.	35	267	16.5	5290	23.3	41.5	33.3	8.215	0.80	222,380	6.2	4.3	1.3
.	36	200	17.0	5560	18.9	34.7	27.6	7.074	0.80	247,780	6.3	4.3	1.3
.	37	133	17.5	5830	13.6	25.7	20.3	5.408	0.79	275,820	6.3	4.4	1.3
.	38	67	18.0	6120	7.3	14.3	11.2	3.096	0.78	306,770	6.4	4.4	1.3

NEW JERSEY GUARANTEED TUITION PLAN
PERCENTAGE OF ACTUAL TUITION COVERED BY THE PLAN
AT VARIOUS RATES OF TUITION, RETURN AND NJ MATRICULATION
PLAN A RETURN -2%, PLAN B WITH 5% DISCOUNT
PAYMENTS FIXED AT ENTRY YEAR TO RECEIVE $1000 TUITION AT 1986 PRICES

....TABLE A.... PERCENT OF ACTUAL TUITION COVERED		PLAN OPTIONS																			
		(A) TAXABLE										(B) TAX EXEMPT									
		TUITION GROWTH %										TUITION GROWTH %									
		3	4	5	6	7	8	9	10	11	12	3	4	5	6	7	8	9	10	11	12
		PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT
NJ MATRICU-LATION %	RATE OF RETURN																				
70	3	106	98	91	85	78	73	67	62	57	53	103	96	89	82	76	71	65	60	56	51
	4	.	106	98	91	84	78	72	67	62	57	.	105	98	91	84	78	72	66	61	56
	5	.	.	106	98	91	84	78	72	66	61	.	.	107	99	92	85	79	73	67	62
	6	.	.	.	106	98	91	84	78	72	66	.	.	.	109	101	94	87	80	74	68
	7	.	.	.	.	106	98	91	84	77	71	.	.	.	.	111	103	95	88	81	75
	8	.	.	.	.	.	106	98	91	84	77	.	.	.	.	.	113	105	97	89	82
	9	.	.	.	.	.	.	106	98	91	83	.	.	.	.	.	.	115	106	98	90
	10	.	.	.	.	.	.	.	106	98	90	.	.	.	.	.	.	.	116	107	99
	11	.	.	.	.	.	.	.	.	106	98	.	.	.	.	.	.	.	.	118	109
	12	.	.	.	.	.	.	.	.	.	106	.	.	.	.	.	.	.	.	.	119
80	RATE OF RETURN																				
	3	103	96	89	83	77	71	66	61	56	52	99	93	86	80	74	68	63	58	54	50
	4	.	103	96	89	83	76	71	65	60	56	.	101	94	87	81	75	69	64	59	54
	5	.	.	103	96	89	82	76	70	65	60	.	.	102	95	88	81	75	69	64	59
	6	.	.	.	103	96	89	82	76	70	65	.	.	.	103	96	89	82	76	70	64
	7	.	.	.	.	104	96	89	82	76	70	.	.	.	.	104	97	89	83	76	70
	8	.	.	.	.	.	104	96	88	82	75	.	.	.	.	.	106	98	90	83	77
	9	.	.	.	.	.	.	104	96	88	81	.	.	.	.	.	.	107	98	91	84
	10	.	.	.	.	.	.	.	104	96	88	.	.	.	.	.	.	.	107	99	91
	11	.	.	.	.	.	.	.	.	104	96	.	.	.	.	.	.	.	.	108	100
	12	.	.	.	.	.	.	.	.	.	104	.	.	.	.	.	.	.	.	.	109

NEW JERSEY GUARANTEED TUITION PLAN
PERCENTAGE OF ACTUAL TUITION COVERED BY THE PLAN
AT VARIOUS RATES OF TUITION, RETURN AND NJ MATRICULATION
PLAN A RETURN -2%; PLAN B WITH 5% DISCOUNT
PAYMENTS FIXED AT ENTRY YEAR TO RECEIVE $1000 TUITION AT 1986 PRICES

....TABLE B.... PERCENT OF ACTUAL TUITION COVERED		PLAN OPTIONS																			
		(A) TAXABLE										(B) TAX EXEMPT									
		POINT SPREAD BETWEEN TUITION AND RETURN										POINT SPREAD BETWEEN TUITION AND RETURN									
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
		PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT
NJ MATRICULATION %	RATE OF RETURN																				
70	3	106	98	91	85	78	73	67	62	57	53	103	96	89	82	76	71	65	60	56	51
	4	106	98	91	84	78	72	67	62	57	.	105	98	91	84	78	72	66	61	56	.
	5	106	98	91	84	78	72	66	61	.	.	107	99	92	85	79	73	67	62	.	.
	6	106	98	91	84	78	72	66	.	.	.	109	101	94	87	80	74	68	.	.	.
	7	106	98	91	84	77	71	.	.	.	.	111	103	95	88	81	75	.	.	.	.
	8	106	98	91	84	77	.	.	.	.	.	113	105	97	89	82	.	.	.	.	.
	9	106	98	91	83	.	.	.	.	.	.	115	106	98	90	.	.	.	.	.	.
	10	106	98	90	.	.	.	.	.	.	.	116	107	99	.	.	.	.	.	.	.
	11	106	98	.	.	.	.	.	.	.	.	118	109	.	.	.	.	.	.	.	.
	12	106	.	.	.	.	.	.	.	.	.	119	.	.	.	.	.	.	.	.	.
80	RATE OF RETURN																				
	3	103	96	89	83	77	71	66	61	56	52	99	93	86	80	74	68	63	58	54	50
	4	103	96	89	83	76	71	65	60	56	.	101	94	87	81	75	69	64	59	54	.
	5	103	96	89	82	76	70	65	60	.	.	102	95	88	81	75	69	64	59	.	.
	6	103	96	89	82	76	70	65	.	.	.	103	96	89	82	76	70	64	.	.	.
	7	104	96	89	82	76	70	.	.	.	.	104	97	89	83	76	70	.	.	.	.
	8	104	96	88	82	75	.	.	.	.	.	106	98	90	83	77	.	.	.	.	.
	9	104	96	88	81	.	.	.	.	.	.	107	98	91	84	.	.	.	.	.	.
	10	104	96	88	.	.	.	.	.	.	.	107	99	91	.	.	.	.	.	.	.
	11	104	96	.	.	.	.	.	.	.	.	108	100	.	.	.	.	.	.	.	.
	12	104	.	.	.	.	.	.	.	.	.	109	.	.	.	.	.	.	.	.	.

DEPARTMENT OF HIGHER EDUCATION
OFFICE OF STUDENT ASSISTANCE

TUITION, INFLATION AND INTEREST RATES 1967-1986

YEAR	TUITION $			TUITION INDEX			CONSUMER PRICE INDEX	ANNUAL % INCREASE				BOND INTEREST US 10-YR
	STATE COLL.	RUTGERS UNIV.	INDEP-ENDENT	STATE COLL.	RUTGERS UNIV.	INDEP-ENDENT	USA	US CPI	STATE COLL.	RUTGERS UNIV.	INDEP-ENDENT	ANNUAL AVERAGE
1967-68	350	400	1200	100	100	100	100					4.5
1968-69	350	400	1300	100	100	108	104	4.0	0.0	0.0	8.3	5.0
1969-70	350	400	1500	100	100	125	110	5.8	0.0	0.0	15.4	6.0
1970-71	350	400	1700	100	100	142	116	5.5	0.0	0.0	13.3	6.8
1971-72	535	585	1800	153	146	150	121	4.3	52.9	46.3	5.9	6.2
1972-73	535	585	1900	153	146	158	125	3.3	0.0	0.0	5.6	6.5
1973-74	535	585	2000	153	146	167	133	6.4	0.0	0.0	5.3	7.0
1974-75	535	585	2200	153	146	183	148	11.3	0.0	0.0	10.0	7.8
1975-76	704	760	2400	201	190	200	162	9.5	31.6	29.9	9.1	7.8
1976-77	704	760	2500	201	190	208	171	5.6	0.0	0.0	4.2	7.5
1977-78	704	760	2650	201	190	221	182	6.4	0.0	0.0	6.0	7.4
1978-79	704	760	2800	201	190	233	195	7.1	0.0	0.0	5.7	8.9
1979-80	736	832	3100	210	208	258	218	11.8	4.5	9.5	10.7	10.5
1980-81	800	940	3450	229	235	288	247	13.3	8.7	13.0	11.3	[illegible]
1981-82	864	1110	3980	247	278	323	272	10.1	8.0	18.1	12.5	13.5
1982-83	960	1366	4430	274	342	369	289	6.3	11.1	23.1	14.2	12.0
1983-84	1024	1490	4850	293	373	404	297	2.8	6.7	9.1	9.5	11.8
1984-85	1088	1520	5300	311	380	442	308	3.7	6.3	2.0	9.3	11.5
1985-86	1184	1748	5800	338	437	483	319	3.6	8.8	15.0	9.4	9.0
1986-87	1280	1852	6200	366	463	517	323	1.3	8.1	5.9	6.9	8.0

Independent college tuition is estimated.
Consumer Price Index is for calendar year of fall term.
Bond yields are 10 Year US Treasury.

DEPARTMENT OF HIGHER EDUCATION
OFFICE OF STUDENT ASSISTANCE

TUITION, INFLATION AND INTEREST RATES 1967-1986

	TUITION INDEX			CONSUMER PRICE INDEX	TEN YEAR MOVING AVERAGE					POINT SPREAD		
					ANNUAL % INCREASE				AVERAGE	RETURNS - TUITION		
YEAR	STATE COLL.	RUTGERS UNIV.	INDEP-ENDENT	USA	US CPI	STATE COLL.	RUTGERS UNIV.	INDEP-ENDENT	BOND INTEREST SIMPLE	STATE COLL.	RUTGERS UNIV.	INDEP-ENDENT
1967-68	100	100	100	100								
1968-69	100	100	108	104								
1969-70	100	100	125	110								
1970-71	100	100	142	116								
1971-72	153	146	150	121								
1972-73	153	146	158	125								
1973-74	153	146	167	133								
1974-75	153	146	183	148								
1975-76	201	190	200	162								
1976-77	201	190	208	171								
1977-78	201	190	221	182	6.2	8.5	7.6	8.3	6.9	-1.6	-0.7	-1.4
1978-79	201	190	233	195	6.5	8.5	7.6	8.1	7.2	-1.3	-0.4	-0.9
1979-80	210	208	258	218	7.1	8.9	8.6	7.6	7.7	-1.2	-0.9	0.1
1980-81	229	235	288	247	7.9	9.8	9.9	7.4	8.3	-1.5	-1.6	0.9
1981-82	247	278	323	272	8.5	5.3	7.1	8.0	9.0	3.7	1.9	1.0
1982-83	274	342	369	289	8.8	6.4	9.4	8.9	9.6	3.2	0.2	0.7
1983-84	293	373	404	297	8.4	7.1	10.3	9.3	10.0	2.9	-0.3	0.7
1984-85	311	380	442	308	7.7	7.7	10.5	9.3	10.4	2.7	-0.1	1.1
1985-86	338	437	483	319	7.1	5.4	9.0	9.3	10.5	5.1	1.5	1.2
1986-87	366	463	517	323	6.6	6.2	9.6	9.6	10.6	4.4	1.0	1.0

01-Jun-87

\DATA\TUITION CHANGE

Tuition and CPI are average annual increase for prior 10 years.
Bond yields are 10 year averages.

New Jersey Guaranteed College Tuition Plan Proposal (A)
Effect of Variations in Behavior
On % of Tuition Reimbursed by the Plan

(A) **Withdrawals**
(Fixed payments)

Point	Percentage Matriculating			
Spread	60%	70%	80%	90%
0	109%	106%	104%	102%
1	101	98	96	94
2	94	91	89	87
3	86	84	82	80

- Every additional 10% matriculating reduces coverage by about 2 percentage points.

(B) **Age distribution of entrants**
(Fixed payments, 70% matriculation)

Point	Age distribution		
	All	Equal	All
Spread	Over 7	1-15	Under 7
0	104%	106%	107%
1	99	98	98
2	94	91	90
3	90	84	82

- Younger age distributions reduce coverage significantly with larger point spreads.

(C) **Fixed vs. Increasing Size of Payments**
(70% matriculation)

Point	Annual Payment Amount	
Spread	Fixed	Increasing
0	106%	105%
1	98	98
2	91	92
3	84	86

- Larger payments in the later years increases coverage.

NEW JERSEY GUARANTEED TUITION PLAN
PERCENTAGE OF ACTUAL TUITION COVERED BY THE PLAN
AT VARIOUS RATES OF TUITION, RETURN AND NJ MATRICULATION
PLAN A RETURN -2%; PLAN B WITH 5% DISCOUNT
PAYMENTS INCREASED ANNUALLY AT THE TUITION RATE

....TABLE B.... PERCENT OF ACTUAL TUITION COVERED		PLAN OPTIONS																			
		(A) TAXABLE										(B) TAX EXEMPT									
		POINT SPREAD BETWEEN TUITION AND RETURN										POINT SPREAD BETWEEN TUITION AND RETURN									
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
		PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT
NJ MATRICU-LATION %	RATE OF RETURN																				
70	3	105	98	92	86	81	76	71	67	63	59	102	96	89	83	78	73	69	65	61	57
	4	105	98	92	86	81	76	71	67	63	.	105	97	91	85	80	75	70	66	62	.
	5	105	98	92	86	81	76	71	67	.	.	106	99	93	87	81	76	71	67	.	.
	6	105	98	92	86	81	76	71	.	.	.	108	101	94	88	82	77	73	.	.	.
	7	105	98	92	86	81	76	.	.	.	.	110	102	96	89	84	78	.	.	.	.
	8	105	98	92	86	81	.	.	.	.	.	111	104	97	91	85	.	.	.	.	.
	9	105	98	92	86	.	.	.	.	.	.	113	105	98	92	.	.	.	.	.	.
	10	105	98	92	.	.	.	.	.	.	.	114	106	99	.	.	.	.	.	.	.
	11	105	98	.	.	.	.	.	.	.	.	115	107	.	.	.	.	.	.	.	.
	12	105	.	.	.	.	.	.	.	.	.	116	.	.	.	.	.	.	.	.	.
80	RATE OF RETURN																				
	3	103	96	90	84	79	74	70	65	62	58	99	93	87	81	76	71	67	63	59	56
	4	103	96	90	84	79	74	70	65	62	.	101	94	88	82	77	72	68	64	60	.
	5	103	96	90	84	79	74	70	65	.	.	102	95	89	83	78	73	68	64	.	.
	6	103	96	90	84	79	74	70	.	.	.	103	96	90	84	78	74	69	.	.	.
	7	103	96	90	84	79	74	.	.	.	.	104	97	90	85	79	74	.	.	.	.
	8	103	96	90	84	79	.	.	.	.	.	105	98	91	85	80	.	.	.	.	.
	9	103	96	90	84	.	.	.	.	.	.	105	98	92	86	.	.	.	.	.	.
	10	103	96	90	.	.	.	.	.	.	.	106	99	93	.	.	.	.	.	.	.
	11	103	96	.	.	.	.	.	.	.	.	107	100	.	.	.	.	.	.	.	.
	12	103	.	.	.	.	.	.	.	.	.	107	.	.	.	.	.	.	.	.	.

NEW JERSEY GUARANTEED TUITION PLAN
PERCENTAGE OF ACTUAL TUITION COVERED BY THE PLAN
AT VARIOUS RATES OF TUITION, RETURN AND NJ MATRICULATION
PLAN A RETURN -2%; PLAN B WITH 5% DISCOUNT
PAYMENTS FIXED AT ENTRY YEAR TO RECEIVE $1000 TUITION AT 1986 PRICES
OLDER AGE DISTRIBUTION

....TABLE B.... PERCENT OF ACTUAL TUITION COVERED		PLAN OPTIONS																			
		(A) TAXABLE										(B) TAX EXEMPT									
		POINT SPREAD BETWEEN TUITION AND RETURN										POINT SPREAD BETWEEN TUITION AND RETURN									
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
		PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT
NJ MATRICULATION %	RATE OF RETURN																				
70	3	104	99	94	90	86	82	78	74	71	67	100	96	91	87	83	79	75	72	68	65
	4	104	99	94	90	86	82	78	74	70	.	102	97	93	88	84	80	76	73	69	.
	5	104	99	94	90	86	82	78	74	.	.	104	99	94	90	85	81	77	74	.	.
	6	104	99	94	90	86	81	78	.	.	.	105	100	95	91	87	82	78	.	.	.
	7	104	99	94	90	86	81	.	.	.	.	107	101	97	92	88	83	.	.	.	.
	8	104	99	94	90	85	.	.	.	.	.	108	103	98	93	89	.	.	.	.	.
	9	104	99	94	90	.	.	.	.	.	.	109	104	99	94	.	.	.	.	.	.
	10	104	99	94	.	.	.	.	.	.	.	110	105	100	.	.	.	.	.	.	.
	11	104	99	.	.	.	.	.	.	.	.	112	106	.	.	.	.	.	.	.	.
	12	104	.	.	.	.	.	.	.	.	.	113	.	.	.	.	.	.	.	.	.
80	RATE OF RETURN																				
	3	102	97	93	89	84	80	77	73	69	66	98	94	89	85	81	77	74	70	67	63
	4	102	97	93	89	84	80	77	73	69	.	99	94	90	86	82	78	74	71	67	.
	5	102	97	93	88	84	80	76	73	.	.	100	95	91	87	82	78	75	71	.	.
	6	102	97	93	88	84	80	76	.	.	.	101	96	92	87	83	79	75	.	.	.
	7	102	97	93	88	84	80	.	.	.	.	102	97	92	88	84	80	.	.	.	.
	8	102	97	93	88	84	.	.	.	.	.	103	98	93	89	84	.	.	.	.	.
	9	102	97	93	88	.	.	.	.	.	.	103	98	94	89	.	.	.	.	.	.
	10	102	97	93	.	.	.	.	.	.	.	104	99	94	.	.	.	.	.	.	.
	11	102	97	.	.	.	.	.	.	.	.	105	100	.	.	.	.	.	.	.	.
	12	102	.	.	.	.	.	.	.	.	.	105	.	.	.	.	.	.	.	.	.

NEW JERSEY GUARANTEED TUITION PLAN
PERCENTAGE OF ACTUAL TUITION COVERED BY THE PLAN
AT VARIOUS RATES OF TUITION, RETURN AND NJ MATRICULATION
PLAN A RETURN -2%; PLAN B WITH 5% DISCOUNT
PAYMENTS FIXED AT ENTRY YEAR TO RECEIVE $1000 TUITION AT 1986 PRICES
YOUNGER AGE DISTRIBUTION

....TABLE B.... PERCENT OF ACTUAL TUITION COVERED		PLAN OPTIONS																			
		(A) TAXABLE										(B) TAX EXEMPT									
		POINT SPREAD BETWEEN TUITION AND RETURN										POINT SPREAD BETWEEN TUITION AND RETURN									
		0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
		PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT	PCT
NJ MATRICU-LATION %	RATE OF RETURN																				
70	3	106	98	90	83	76	70	64	59	54	49	104	96	88	81	74	68	63	57	52	48
	4	106	98	90	83	76	70	64	58	53	.	106	98	90	83	76	70	64	58	53	.
	5	107	98	90	83	76	69	64	58	.	.	109	100	92	84	77	71	65	59	.	.
	6	107	98	90	82	76	69	63	.	.	.	111	102	93	86	78	72	66	.	.	.
	7	107	98	90	82	75	69	.	.	.	.	113	103	95	87	80	73	.	.	.	.
	8	107	98	90	82	75	.	.	.	.	.	115	105	96	88	81	.	.	.	.	.
	9	107	98	90	82	.	.	.	.	.	.	116	107	98	89	.	.	.	.	.	.
	10	107	98	90	.	.	.	.	.	.	.	118	108	99	.	.	.	.	.	.	.
	11	107	98	.	.	.	.	.	.	.	.	119	109	.	.	.	.	.	.	.	.
	12	107	.	.	.	.	.	.	.	.	.	121	.	.	.	.	.	.	.	.	.
80	RATE OF RETURN																				
	3	104	96	88	81	74	68	63	57	52	48	100	92	85	78	72	66	60	55	51	46
	4	104	96	88	81	74	68	62	57	52	.	102	93	86	79	72	66	61	56	51	.
	5	104	95	88	80	74	68	62	57	.	.	103	95	87	80	73	67	61	56	.	.
	6	104	95	88	80	74	67	62	.	.	.	104	96	88	81	74	68	62	.	.	.
	7	104	95	87	80	73	67	.	.	.	.	105	97	89	81	74	68	.	.	.	.
	8	104	95	87	80	73	.	.	.	.	.	106	98	89	82	75	.	.	.	.	.
	9	104	95	87	80	.	.	.	.	.	.	107	98	90	82	.	.	.	.	.	.
	10	104	95	87	.	.	.	.	.	.	.	108	99	91	.	.	.	.	.	.	.
	11	104	95	.	.	.	.	.	.	.	.	109	100	.	.	.	.	.	.	.	.
	12	104	.	.	.	.	.	.	.	.	.	110	.	.	.	.	.	.	.	.	.

PROSPECTS FOR SUPPLEMENTAL EDUCATION LOANS

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Summary

This paper notes that higher education in America has historically been paid for by a combination of tax support, private philanthropic funding, and family contributions. Higher prices, restricted access to federal aid, and escalating belief in the desirability of obtaining higher education results in an increasing need and willingness of families to borrow for education.

As borrowing needs exceed federal loan limits and income restrictions, families turn to "Supplemental" loan programs. The political and policy background, including Congressional and executive attitudes toward federal subsidies for parent and supplemental borrowing is examined. Current criticisms of GSL by policy analysts and the public are noted.

Private lenders are needed as sources of capital, but increasing borrowing requires new levels of information and financial counseling services. The Education Resources Institute (TERI) was founded in 1985 as a private non-profit organization to meet both capital formation and counseling needs. TERI provides private loan guaranty services and sponsors a higher education information center, debt management task force efforts, financial aid officer training, and early awareness programs. This combination of loan program and information services sponsored by a private non-profit using capital from private for-profit lending institutions is a possible model for use by policy makers interested in supplemental student loans.

Prospects for Supplemental Education Loans

by Ernest T. Freeman and Thomas D. Parker

Most of us have encountered a member of an older generation who is at once in awe of and skeptical of higher education. Self-made entrepreneurs, for example, have long worried that higher education would "spoil" the next generation. At the same time, most of these older skeptics have insisted that the next generation receive the highest possible degree of education. The current generation of "Yuppies" would be surprised to know that, as recently as the 1950s, many corporate executives or small business owners had no advanced degree and indeed often no college education. The college graduate as the norm in America did not emerge until the GI Bill of Rights made college possible for large numbers of those previously unlikely to attain higher education. Prior to World War II, only one in every 17 young adults graduated from college. However, not having a degree or being suspicious of elitism in no way dampened the insistence of parents that children and grandchildren receive degrees. It should be noted, however, that even the G.I. Bill was motivated as much by fear that a huge number of returning soldiers would glut the post-war labor force as by altruistic or economic belief in the value of higher education.

In the 1980s, there is a similar paradoxical attitude on the part of an older generation of corporate executives, most of whom have received one post-secondary degree (usually an A.B. in the liberal arts) toward the bright young men and women working for them, most of whom have received both an undergraduate degree and a graduate degree in business or engineering. The stories repeat in different ways, but the pattern is the same. The older generation, with less education, suspects that the newer generation may not be as savvy or as aware of the importance of "sweat equity" as it should be, but at the same time, there is the suspicion that sooner or later increased educational attainment is an economic as well as a social necessity.

What is less widely understood is that this pattern of increasing educational attainment from generation to generation has been made possible only by a combination of support for education by federal, state, private, and parental sources. Some parents prefer not to acknowledge the degree to which outside support enabled their offspring to attend college, but outside support has come not only in the form of aid to individuals in cases such as the GI Bill of Rights and the Guaranteed Student Loan Program but also in the form of aid to educational institutions, for example, the land grant university system and state support for colleges and universities. Philanthropic contributions have long subsidized prices at private institutions and such support kept the price of education low at many institutions. For a period spanning two decades, from the 1950s to the mid-1970s, this combination of support enabled many students to obtain higher education with minimal family assistance. The fact that many students were able to "work their way through" college on the basis of meager summer and term-time earnings is not so much a tribute to personal diligence as it is a reminder of how the price of education was kept low by the combination of support systems mentioned above.

In the 1980s, a pattern prevails of uncertain federal and state support and steady increases in the price of education. The result is that the historical pattern of substantial family assistance is reemerging. In the mid-1960s it was hoped, with the creation of the Guaranteed Student Loan Program, that reliance on family assistance would be unnecessary if the student would take on a minimal loan burden. The fallacy of this assumption was documented clearly in the early 1980s by the Sloan Commission Report on Higher Education. The report argued that students alone could not be expected to continue to take on debt to offset increasing prices and that a return to family assistance would be necessary. The College Board now estimates that 65 percent of all students receive parental assistance.

In the next decade, the fundamental policy issues facing higher education finance will revolve around achieving a new balance among sources of support for students and educational institutions. The argument here is that one of the clearly emerging forces in this balance is the non-federal alternative loan. A combination of political and economic factors are at work which will result in either diminished federal funding for higher education or at least very slow growth in such aid. The reduction coincides with a period when prices in higher education continue to rise. What follows is an attempt to describe and analyze these forces and the way in which they impinge upon alternative loan trends, including a description of the actual workings of one such alternative loan program devised to meet the new needs. The Education Resources Institute (TERI) serves as a case study exemplifying problems and prospects in the field.

The Political, Economic, and Policy Background

In its 1986 reauthorization of the Higher Education Act, Congress steadfastly resisted those who would have severely diminished the federal Guaranteed Student Loan Program. Yet, veteran observers of the interaction between political forces and federal support for access to higher education have remained concerned by steady changes in public opinion and in the views of political and policy leaders in Washington, D.C.

Washington policy analysts have long been critical of certain aspects of the Guaranteed Student Loan Program. More than a decade ago, Chester E. Finn, Jr., now Assistant Secretary of Education for Research and Improvement, in his book, Dollars, Scholars, and Bureaucrats, summarized a case for eliminating the GSL within state-based guarantee agencies and substituting a national student loan bank, complete with student loan administration emanating from a Washington, D.C. bureaucracy. Arthur Hauptman, a respected consultant in financial assistance policy, has advocated replacing GSL with a modified version of the National Defense Student Loan program. Michael McPherson, Professor of Economics at Williams College, critiqued the use of private capital markets in the federally assisted GSL program. These and other technical analysts have emphasized economic and bureaucratic inefficiencies in the program. The complexity of the GSL, they argue, has become so great that tinkering with its provisions to make them more efficient is not enough. They support dismantling the GSL as presently constructed and replacing it with a new program.

Just as policy analysts both left and right are raising serious reservations about GSL, politicians along the entire ideological spectrum are raising concerns. There is a widespread perception that students are borrowing too much, that private enterprises are profiting too greatly, that default rates are too high, and that the availability of federally subsidized loans discourages higher education institutions from attempts at cost containment. While all of these criticisms are either untrue, unproven by any research, or greatly exaggerated, the fact that many believe them to be true cannot be ignored. Just as policy analysts and politicians have expressed reservations, various public opinion polls during the 1980s have demonstrated skepticism by the general public about federal student financial assistance.

These opinion trends indicate that the need for alternative non-federal sources of education loans will continue in the coming decade. The so-called "alternative" or "supplemental" loan program initiatives (meaning alternative or supplemental to federal GSL funds) are not new. The Congress itself recognized the need for supplemental loans when it established the "PLUS" program authorizing additional loan funds for parents and students beginning January 1, 1981. By January, 1982, the number of alternative loan programs in existence was large enough to warrant the establishment of a newsletter reporting on them. The Alpine published its first issue under the auspices of the Alternative Loan Program Task Force of the National Council on Higher Education Loan Programs and the Massachusetts Higher Education Assistance Corporation. The conventional wisdom in 1982 was that the demand for education loans to supplement GSL and PLUS would be filled largely through state programs using tax-exempt revenue bonds for funding. This notion was reinforced by the fact that in many states in 1982 PLUS volume actually declined.

A dozen states organized revenue bond programs to provide education loans at lower interest rates, and many believed that they would replace the PLUS program entirely. But this was not to be. The Congress progressively tightened restrictions on the issuance of state-based, tax-exempt revenue bonds. The interest rate on PLUS loans dropped from 14 to 12 percent. Within a year, Massachusetts PLUS loan volume grew by 25 percent.

In the 1986 reauthorization, the Congress revised the sluggish formula by which the PLUS rate had previously been established and replaced it with a more sensitive variable rate formula to assure that PLUS could be more competitive with the general market. The effect of the new PLUS program is yet to be measured; however, most analysts believe that PLUS volume will increase. The Congress also established Supplementary Loans for Students in an attempt to improve on the PLUS program for independent students which had at one point unfortunately been dubbed "ALAS" (Auxiliary Loans to Assist Students).

Perhaps the most controversial 1986 Congressional action relating to education finance came not in the higher education act but in the tax reform bill. That measure phases out income tax deductions for interest on consumer loans including loans for education. At the same time, the bill allows those rich or fortunate enough to own homes to retain the income tax deduction on home equity borrowing. The rich can borrow for education and receive a tax break. Others can not. Attempts to address this inequity will be made in future Congresses.

The overall message from the 1986 reauthorization of the Higher Education Act is that the U.S. Congress does not support the draconian measures for reduction in federal student aid assistance proposed by some analysts and by the Reagan Administration. Astute lawmakers on both sides of the aisle have realized that this battle over support for student assistance is not merely a matter of how much to cut the budget. The fundamental policy issue is the degree to which the U.S. Congress and the electorate to which it reports believe that widespread access to higher education is a major national priority.

The Education Department during the Reagan Administration formulated a series of responses to the issue. Initially, the Department embraced the PLUS program as a healthy alternative to GSL. Its rate of interest was higher, so costs to the government for special allowance payments to banks were substantially lower than GSL. In addition, it had no post-deferment "grace period" to subsidize. It was seen by officials in the Department as a potential replacement for guaranteed student loans to middle- and upper-middle income students and parents.

While none of the drafters of the original PLUS legislation imagined that PLUS would be the cornerstone of a future Republican Administration student financial aid policy, it became that in 1981. The Democrats in 1979-1980 saw PLUS as a supplemental source; they never envisioned that it would be used substantially to replace GSL assistance. The 1978 Middle Income Assistance Act, which provided for guaranteed student loans to all regardless of income, was based on the premise that all students have a right to post-secondary education (and on cost projections which turned out to be too low). The PLUS program, as envisioned by the Reagan Administration in 1981, assumed that education was a privilege to be provided for students by parents if both were willing and able to share financial responsibilty.

In the years since 1981, legislators from both parties have rejected the subsidized "loans for all" concept of Middle Income Assistance Act. Eligibility for the Guaranteed Student Loan Program has been consistently restricted. The effects of the 1986 reauthorization and its new eligibility requirements are such that on many campuses financial aid officers are predicting reduction in guaranteed student loan volume of 50 percent or more. The market rate PLUS or SLS programs become the only federal loan alternative for vast numbers of middle-income students previously served by GSL. For these newly excluded students, the fact that loan limits for upper classmen in the GSL program have been substantially increased is of little solace.

PLUS may be an adequate replacement at low-cost institutions for students displaced from GSL. The fact that the price of higher education has risen since 1980 more rapidly than inflation means that fewer and fewer institutions can boast such a low cost that PLUS will be able totally to replace GSL.

This analysis demonstrates another reason why the need for non-federal alternative loans will increase dramatically. In the past, the non-federal alternative loan programs have served largely upper-middle-income students and parents at high-cost institutions. The removal of GSL eligibility from a middle-income layer, along with increased prices at most institutions, means that alternative loans will increasingly become a necessity if widespread access and choice by the middle class is to continue.

These shifts in the demographics of borrowers will have an effect at the institutional level as well. For post-secondary institutions with substantial portions of operating income coming from the Guaranteed Student Loan Program, the issue is less one of social policy regarding access and more one of institutional survival. At the institutional level, the implications of a reduction in student loan availability are substantial. Private and public institutions both will feel the impact. Private colleges have higher prices and rely more heavily on loans to enable families to pay tuition bills. Public colleges and universities with lower prices argue that the formulation of eligibility requirements penalizes institutions with low prices because the high cost of education is one factor driving the amount of loan eligibility.

Another obvious but significant result of diminished eligibility for GSL is that some students, especially in the private sector, cannot come up with money to pay for full-time study. Institutions are understandably eager to guarantee the availability of alternative loan funds for these students and their families.

Many institutions initially believe that they can provide alternative loans by establishing their own programs or joint programs with a local lending institution. The student loan business, however, is considerably more complicated than it might first appear to a board of trustees or a financial aid office. In the NDSL loan program, colleges and universities were asked to administer and service student loan portfolios; the results were negative. Institutions which have for many years had effective small-scale loan programs using institutional funds have, as the demand for alternative loans has increased dramatically, been forced to turn to outside sources for help in loan administration and collections.

In Massachusetts, such requests for assistance from colleges began arriving at the Massachusetts Higher Education Assistance Corporation in the early 1980s. By 1982, the corporation saw fit to establish a planning team made up of lenders, university representatives, and the corporate strategic planning department to design a prototypical non-federal alternative loan program. MILO, the Middle Income Loan Option, was the first design for such a program by a state guarantee agency. Between 1982 and 1986, many new alternative loan programs were developed. Few prospered. The market for these programs was not great in the face of GSL and PLUS availability.

The combination of the new restrictions of 1986 and increased college prices created an alternative loan program market. Yet, just as the alternative loan market accelerated, policymakers and educators voiced concern that students and their parents were having to borrow too much to pay for the price of higher education. Economists studying the value of human capital are reassuring about the lifetime value of education purchased vs. debt burden assumed. Americans, however, are accustomed only to minimal borrowing for education. There has emerged a tension between the natural interest of the private sector to increase education loan product volume and concerns by leading educators that this zeal should be tempered with debt counseling and caution about borrowing.

The TERI Response

In Massachusetts, the borrowing dilemma has been addressed by the establishment of a private, non-profit institution, The Education Resources Institute (TERI), which is governed jointly by representatives of the lending community and the educational community. TERI's mandate is to provide an alternative loan program *and* information, counseling, and research. The purpose of TERI is to address social and educational issues related to the need for new sources of capital funding. Its charter states:

> The Corporation shall always be operated exclusively for charitable and educational purposes through assisting students in obtaining an education and through assisting educational institutions in providing an education in an economical fashion.

This broad mandate enables the corporation to adapt to changes in the student financial assistance universe. The broadness of the mandate, however, did not keep the drafters of the charter from also making rather narrow technical provisions to encourage the Institute in the establishment of an attractive alternative loan program. Section(b) of Article 2 of the corporate charter is noteworthy in that it offers a glimpse into the complexities of the alternative loan business. This section allows TERI:

> ....to make contracts, give guarantees, and incur liabilities, including any secondary liability by way of guaranty or endorsement of the obligations of any student, his parent, or guardian, or of any educational institution; borrow money at such rates of interest as the corporation may determine; issue notes, bonds, and other obligations; and secure any of its obligations by mortgage, pledge, or encumbrance of, or security interest in, all or any of its property, or any interest therein, wherever situated, for any of the purposes of the Corporation.

The above dramatically illustrates the need for a specialized institution capable of dealing with the complicated interface between students, educational institutions, lending institutions, and institutions of public finance.

After one year of operation, it is possible to summarize how TERI has been able, using its complex charter language, to establish a program for the benefit of students and educational institutions. In essence, in its first year, The Education Resources Institute established the TERI Supplemental Loan Program. This program enables credit-worthy families to borrow up to $15,000 annually to pay education costs. Despite the considerable analysis indicating that there was need to provide families with increased ability to borrow for education, the waters in the fall of 1985 were largely untested. After nearly two decades in which family borrowing had been only minimally necessary outside of the federal programs, neither TERI analysts nor marketing experts at major banks were certain about the future of alternative family education borrowing. A number of lending institutions were approached with the TERI idea. The institution willing to accept the risks attendant to being a pioneer was the Bank of Boston which made a significant commitment of personnel and capital. It contributed a substantial marketing effort on behalf of the TERI guaranteed program which at the Bank of Boston was designated "The Alliance Loan Program." The first Bank of Boston Alliance loan was disbursed in November, 1985. In return for its willingness to be the pioneer and take the risks of entering the market first, the bank realized volume of ten million dollars in the first year of the Alliance program.

The Institute has subsequently entered into detailed agreements with a total of seven lenders willing to offer these loans to students at favorable interest rates in return for the TERI guarantee that, in the event of default, lenders will be reimbursed. The most recent participating bank is Chase Manhattan of New York. This marriage of a private, non-profit institution and banks willing to make private capital available for students is a model which many consider to be a prototype for higher education finance in the 1990s and beyond. Unlike other models being developed and tested, the TERI program does not require educational institutions to participate in the inherent risks; nor does it charge a fee to educational institutions. Families declared ineligible for federal guaranteed student loans by tighter eligibility restrictions have welcomed the availability of the TERI loans as a replacement. Others, especially in the graduate and professional schools, have been able to supplement federal loans with a TERI loan to enable them to meet high graduate school costs.

Further, the TERI charter with its combination of a broad mandate and specific technical, financial language has ensured TERI flexibility in the creation of loan programs. Even in its first year, the Institute developed, in addition to its basic program, two other models for supplementary financing. Together with Boston College, TERI shaped the EXCEL program providing family loans up to $15,000 a year, demonstrating that the basic TERI model could be adapted to specific needs of a single institution. In addition, TERI joined with Nellie Mae, Inc. and the Consortium on Financing Higher Education (COFHE) to demonstrate that a group of colleges and universities with similar interests and needs could band together to ensure that their supplementary loan requirements were met in the best possible way. This TERI, Nellie Mae, COFHE program is entitled SHARE. The SHARE program serves a consortium of 30 schools nationwide, including New England institutions such as Amherst College, Brown University, Dartmouth College, Harvard University, the Massachusetts Institute of Technology, Mount Holyoke College, Radcliffe College, Smith College, Wellesley College, Wesleyan University, Wiliams College, and Yale University.

The combination of features in the TERI loan program has proved attractive. These features include: loans of up to $15,000 annually; independence from federal funding including no needs test requirements and no income limits; independence from federal bureaucratic paperwork, making the TERI loan vastly more convenient and less expensive to administer for schools and banks; long repayment terms of up to 15 years; and options to pay interest only while in school. Analysts believe that this combination of features accounts for the fact that in its first full calendar year of operation the program made available more than $20 million to students throughout the United States, a figure considerably in excess of original estimates. The willingness of families to participate even more in the financing of their children's education was confirmed during TERI's first year of operation.

The popularity of the TERI loan program was at least in part due to the fact that the TERI concept attempts to address the full range of social and individual problems emerging in the transition from a period when society required relatively little participation in higher education finance by parents to a time when parents must participate more. The TERI concept is that providing additional loan assistance solves only a portion of the emerging set of problems. To address issues other than supplemental loan availability, the Institute has undertaken an ambitious program of activities designed to inform and guide students and their parents to ensure that access to higher education remains feasible for future generations.

The Higher Education Information Center at the Boston Public Library is a division of TERI and has helped more than 40,000 individuals gain access to higher education through its on-site counseling and information services, a toll-free hotline for information on career and financial aid opportunities, and workshop services held in community and school locations. Services are directed particularly to people who are unfamiliar with the financial aid and college admission processes.

The Center is recognized as a national model because it has been able to coordinate the efforts of and attract support from a wide variety of institutions. It is funded in part by contributions from 25 Boston area colleges and universities which value its ability to provide to urban students information about educational opportunity. The Massachusetts state legislature, through the Massachusetts Board of Regents for Higher Education, has recognized the value of the Center with a grant of $190,000 to expand its toll-free information hotline and to develop special programs in six urban communities to inform high school students about higher education opportunities. The Boston Public Schools have recognized the Center by offering a grant to enable the Center to provide special programs for Boston students including college bus tours, early awareness programs, and a career/school exposition.

At the federal level, the U.S. Department of Education, through the Fund for Improvement for Post-Secondary Education (FIPSE), has funded the development of a peer advisor program to train Boston Public School graduates to conduct workshops for ninth and tenth graders on educational decision making and planning. In addition, federally sponsored educational opportunity centers rely on the Center for services to students. Other contributions to the Center have come from businesses such as the Digital Equipment Corporation and from non-profit associations such as the Massachusetts Association of Student Financial Aid Administrators (MASFAA). The Boston Public Library and the Roxbury Community Action Program in Boston both have made contributions in kind towards the Center's activities. One of the Center's outstanding achievements was participation in the development of the Action Center for Educational Services and Scholarships (ACCESS). ACCESS has gained national recognition by providing Boston public high school students with financial aid information and college advising as well as with "last dollar" scholarships for students who receive insufficient aid from other sources to cover school costs. Both ACCESS and the Higher Education Information Center received crucial initial assistance from the Massachusetts Higher Education Assistance Corporation.

It is these "non-loan program" features which make TERI unique and which have attracted wide attention to the TERI model. Other initiatives by TERI for assistance beyond providing loans include:

- Early awareness programs about financial aid and the promotion of planning in financing education, including pamphlets, posters, cablevision, or other audio and visual techniques.

- Loan counseling and default reduction programs for participants in education loan programs.

- Training of financial aid administrators, including contracts or grants to professional organizations.

- Assistance to persons who have education loans but who, because of below-average salary or public service commitment, face severe difficulty in making loan payments. These programs include options for interest rate buy-downs, graduated repayment programs, and the restructuring of loans on a private basis.

- Enhancement of education loan origination and processing technologies for lenders and educational institutions.

Given the fact that a wholesale revision of federal and state systems of support for higher education is unlikely in the near future, that state tax-exempt programs have the limitations outlined above and that private for-profit lending institutions are generally unable to address the issues of training and education about debt burden and debt management, the TERI model is attractive.

Economists, public policy analysts, and experts on massive federal assistance programs will all continue to produce detailed and valuable studies outlining what "could be" given different political and historical forces or given the sudden availability of massive amounts of federal funds. In the meantime, the TERI model on how a private, not-for-profit institution can cooperate with private, for-profit lending organizations to produce both capital availability and guidance and information for individuals is in place and working well.

DESIGNING A PUBLIC-PRIVATE PARTNERSHIP TO ASSIST STUDENTS: A CASE STUDY OF THE LILLY ENDOWMENT EDUCATIONAL AWARD PROGRAM

by

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SUMMARY

On January 29, 1987, the Lilly Endowment announced a $50 million gift to the people of Indiana in commemoration of the Indianapolis-based charitable foundation's 50th anniversary. What started with the Lilly Endowment Board's decision to help Indiana students finance their education, and ended with the implementation of the new Lilly Endowment Educational Award (LEA) program, is an interesting case study of the role of research in decision-making. The Endowment Board had a clear vision of its goal and a firm idea of its bottom line. The models described in this report played a key role in helping the Board determine how it would pursue its goal within the established bottom-line limits.

DESIGNING A PUBLIC-PRIVATE PARTNERSHIP TO ASSIST STUDENTS: A CASE STUDY OF THE LILLY ENDOWMENT EDUCATIONAL AWARD PROGRAM

I. INTRODUCTION

On January 29, 1987, the Lilly Endowment announced a $50 million gift to the people of Indiana in commemoration of the Indianapolis-based charitable foundation's 50th anniversary. The gift will fund a program of grants for post-secondary students. The Lilly Endowment Educational Award (LEA) program will make its first awards in the 1987-88 academic year and will be sustained by initial funding for seven to eight years.

The LEA program announcement culminated six months of planning by the Endowment, aided indirectly by the the Indiana Commission for Higher Education (ICHE) and the State Student Assistance Commission of Indiana (SSACI). Beginning in August of 1986, the two commissions sponsored a survey of institutional costs and available student financial aid -- the Indiana Post-Secondary Education Financing Study -- that made possible an analysis of the strengths and weaknesses of the current student aid effort. In November of 1986, SSACI provided sample family financial and student award data that made possible the simulation of a variety of formula options for distributing a new pool of grant money. Both research efforts were conducted under contract by Applied Policy

Research, Inc. (APR) and both were underwritten by the Lilly Endowment.

The Lilly Endowment assigned administrative responsibility for the LEA program to SSACI. Students follow the same procedure in applying for an LEA award as for an Indiana Higher Education Grant Program award: by sending a Financial Aid Form (FAF) to the College Scholarship Service (CSS) and requesting that a copy be sent to SSACI. SSACI determines eligibility and calculates the award amount for both programs in a single process. Applicants for awards in 1987-88 received notification of award, or award denial due to lack of need, during the week of May 18, 1987.

II. ANALYZING EXISTING COST COVERAGE

The Indiana Post-Secondary Education Financing Study's analysis of coverage of current aid programs formed the basis for the Lilly Endowment's decisions concerning targeting of LEA grants. A comprehensive report on the findings of the study is found in a publication entitled Remaining Cost: An Analysis of Student Self-Help Expectations in Indiana Post-Secondary Institutions, published in April of 1987.

The focus of the study was the just-ended 1985-86 school year. The objective was to take a snapshot of costs and expenditures at the point when the ledgers were closed on that year. The study was an empirical investigation into how financial responsibility for the cost of undergraduate attendance at Indiana post-secondary institutions was actually apportioned to parents, non-family sources of funds and students. The study required the documentation of three sets of information:

- Educational costs at each post-secondary institution in the state.
- Levels of financial support expected of parents of dependent students in each post-secondary institution in the state.
- Every dollar of financial aid, exclusive of Guaranteed Student Loans, from federal, state, institutional and private sources disbursed to students in each post-secondary institution in the state.

Indiana students and institutions benefit from a mature and well-financed state aid program. The program was ranked 10th nationally in total dollars offered in 1986-87 and offers assistance to roughly 30,000 students annually. Awards cover a fixed percent of a student's need -- based on tuition and fees. Recognized private college tuition is controlled by a cap that relates to public tuition plus average state per student investment in public institutions.

The study identified two significant impacts of the state program. First, because it is like the Pell program and targets assistance to the high-need student, the state program ensured that students from the lowest income families had substantial grant assistance available as they considered the option of attending an Indiana post-secondary institution. Second, unlike the federal program, there is a strong emphasis on educational choice in the Indiana state program. Sizeable state grants were offered to students from low and lower-middle income families who attended private institutions. These grants were larger than those for comparable students attending lower-priced public colleges and covered a larger proportion of educational cost than the Pell grants.

The criterion for evaluating the strengths and weaknesses of the current financial aid effort was the proportion of educational cost covered by the parental contribution in combination with federal, state and institutional financial aid, exclusive of GSL borrowing. Stated conversely, the criterion was the proportion of cost that remained for the student to cover by a combination of savings, work and borrowing.

By this criterion, the comprehensive student financial aid effort in Indiana was relatively strong for students from the lowest income families (under $12,000). Here, the combination of parental contribution and available aid covered between 40 and 60 percent of educational cost, depending on institution. By contrast, students from modest income families ($12,000 to $18,000) were supported at a level between 35 and 53 percent of their respective educational costs. At an income of $24,000 student support had recovered to the level of the lowest income families, primarily because the amount of resources expected from parents had increased. Beyond an income of $30,000, student aid was a relatively insignificant component of educational financing as expected contributions from parents rose to a level where they cover at least 60 percent of educational cost.

Targeting of the Pell and Indiana state programs ensures a solid foundation of assistance for the student whose family can contribute nothing toward educational costs. However, as family income and assets achieve a level where small amounts of assistance are expected, federal and state support has already dropped off significantly leaving a higher proportion of cost to be borne by the student.

While no empirical evidence was developed in this study to demonstrate that higher levels of remaining cost impede attendance or educational progress, these students were typically left with a self-help expectation that exceeded the prevailing borrowing limits of the Guaranteed Student Loan Program. It is not a question of whether the student had to save, work or borrow in order to balance the educational budget; more than likely all three were called into play if the student was to pursue his education full-time. Higher authorized borrowing limits in upcoming years will have a bearing on this issue.

III. PLANNING THE NEW GRANT PROGRAM DESIGN

When making its gift to the people of Indiana, the Lilly Endowment specified a range of annual spending as well as the generic formula structure for the awarding of individual LEA grants. The intended role of the LEA money is made explicit in the award formula. What follows is an outline of the goals and objectives of the LEA program and a description of the components of the award formula.

GOALS AND OBJECTIVES

In the words of Thomas H. Lake, Chairman of the Board of the Lilly Endowment, the Endowment gift "recognizes the importance of higher education to individual fulfillment and to the vitality of the state as a whole. It also responds to recent data showing that Indiana residents are not keeping pace with the nation in pursuing an education beyond high school. In part, this appears to be due to an unmet need for financial assistance." From the beginning, the planning process was dominated by the Lilly Endowment Board's concern over Indiana's low post-secondary participation rate. The research effort attempted to correlate participation with indications of disproportionate financial burden.

The Indiana Post-Secondary Financing Study found that, in 1985-86, students from lower-middle income families were faced with relatively weak support from student financial aid sources and relatively little that could be expected of parents. Census Bureau data for the same period suggested that post-secondary participation rates for young people from lower-middle income families were not much higher than for those from the low income families.

In light of these suggestive findings, the Endowment staff and Board began exploring ways of filling gaps in the current comprehensive student financial aid effort. The Endowment Board decided to concentrate on leveling and lowering the proportion of educational cost that currently remains for the student to cover with savings, work and loans. The Endowment Board also chose to do this in partnership with federal and state grant programs rather than operating independently of those programs.

Building on a foundation of parent contribution and existing governmental grants, the Endowment's objective was to offer Indiana students attending any post-secondary institution in the state a guarantee that a certain, substantial percentage of their cost of attendance would be covered.

LEA AWARD FORMULA

The LEA award formula combines the expected family contribution, the student's Pell grant, and the student's state grant with an LEA award to reach a fixed proportion of his or her cost of attendance. Stated simply, the formula is:

Gap = (Cost x LEA%) - EFC - Pell - State

where: Gap = supplemental eligibility
Cost = cost of attendance
LEA% = target percent of Cost
EFC = expected family contribution
Pell = federal Pell grant
State = Indiana state grant

if chosen institution is public: LEA Award = Gap
if chosen institution is private: LEA Award = Gap x 0.50

The components of this formula are described briefly below.

Cost of Attendance

The cost of attendance consists of actual tuition and fees at the institution attended plus a standard maintenance allowance. The maintenance allowance varies by institution type and is based on a survey of actual campus allowances for dependent students; there is no special maintenance allowance for self-supporting students.

Expected Family Contribution

The LEA program assumes that the contribution from parents of dependent students is equal to the Expected Parental Contribution (PC) of the Uniform Methodology. For self-supporting students, the LEA program expects a contribution from student and spouse equal to the Pell Student Aid Index (SAI). Both indices are calculated by the College Scholarship Service based on the Financial Aid Form. These are the same family expectations used for the Indiana state grant program.

Pell and State Grants

An estimate of the student's likely Pell grant and the actual amount of the state grant award are factored into the LEA award determination. If the percent of educational cost covered by the combination of family contribution, Pell grant and state award exceeds the percent of cost criterion for the LEA program, no LEA award is made.

Gap

The gap is the difference between the target cost (cost of attendance multiplied by the target percent) and the combination of family contribution, Pell grant and state award. In a public institution the gap would be fully filled by the LEA award. In a private institution, only half of the gap would be covered by LEA money; the remaining half is to be covered by a matching institutional grant.

The private school match is a challenge to private institutions to attract additional private contributions to the student aid effort and a recognition that a significant amount of private grant money is already committed to covering student costs. The practical effect is to limit the maximum size of the LEA award. Most grant programs place out-right limits on the award size by capping either the allowable cost or the award amount; neither is done in the LEA program.

IV. PROJECTING FUTURE PROGRAM EXPENDITURES

A computer simulation and expenditure projection model were designed to assist the Lilly Endowment Board and staff in planning the LEA program for 1987-88 and beyond. Because the design of the LEA program builds upon educational grants of the federal and state governments, the simulation program needed to estimate the likely grants from both governmental programs before it could estimate the LEA award. To set this three stage simulation in motion, spending limitations of not only the LEA program, but also of the Pell and Indiana state programs, had to be taken into consideration.

INITIAL ASSUMPTIONS

Pell Grant Assumptions

Prospects appeared good for increased spending in the Pell grant program. Because increased Pell funding would make it possible to lift the ratable reduction of payments that had been imposed in 1986-87, a full payment schedule with a $2,100 maximum award was assumed in the 1987-88 projections.

State Grant Assumptions

As the Indiana General Assembly began its deliberations on 1987-89 appropriations, the Budget Committee proposal for the Indiana Higher Education Grant Program called for total 1987-88 spending (including federal State Student Incentive Grant monies) of $33.7 million, about $2.1 million above the 1986-87 level. This led the SSACI staff to project a possible increase in the percent of need covered (based on tuition and fees only) from 75 percent in 1986-87 to 80 percent in 1987-88, with the cap on independent college tuition raised to $4,624.

LEA Grant Assumptions

The Lilly Endowment Board stated its intention that its $50 million gift should fund a program of seven to eight years' duration, implying a first year expenditure of $5-6 million. Based on early projections, it seemed reasonable to assume that between 45 and 50 percent of attendance cost could be covered by the combination of Pell, state and LEA grants if the Pell and state assumptions described above were to hold.

BALANCING THE BOTTOM LINE

The initial projections showed likely state and LEA spending in 1987-88 substantially above desired levels. This stimulated discussion among both the SSACI and Endowment staff about the reasonableness of their respective program assumptions. The SSACI executive director advised that it would be unwise for the LEA program to assume a percent of need criterion for the state program that would greatly exceed $34 million in total spending. The Endowment Board likewise advised that it did not want to risk an early depletion of its $50 million gift by setting its sights too high.

The goal of reducing projected state expenditures was accomplished by lowering the percent of need criterion to 75 percent, the same level as the 1986-87 year. While gross awarding would reach $43.1 million, net expenditures at the typical rate of 80 percent utilization would be $34.5 million. This level of state award became the background assumption for the revised LEA projection.

When combined with the revised Indiana state program assumption of 75 percent of need, the goal of reducing projected LEA program expenditures was accomplished by lowering the percent of cost criterion to 43 percent. Gross LEA awarding would reach $6.62 million; net expenditures at 80 percent utilization would be $5.30 million -- a level of projected spending within the limits set by the Lilly Endowment Board.

V. IDENTIFYING IMPACTS OF THE NEW PROGRAM

Because of its linkage with the major federal and state grant programs, the LEA program will distribute awards in a pattern that makes sense only in the context of each student's entire aid package. The highest priority target for a LEA award is the student who is furthest from achieving coverage of 43 percent of attendance costs when the expected parental contribution, the Pell grant and the state grant are added together. This is typically not the student with the greatest initial "need" in absolute terms since this student is targeted by the state and federal grant programs. The following statistics from the 1987-88 LEA awarding illustrate this point:

- No LEA grants will be made to students with maximum eligibility for both state and Pell awards.
- The largest average LEA grant in public colleges ($750) will be awarded to students in the 1,350 to 1,450 PC range.

- About one-third of the LEA grant recipients will receive neither a Pell nor a state grant.

The LEA awards clearly gravitate toward the student least well-served by the state and Pell grant programs: the student from a lower-middle income family.

A strong relationship exists between institutional cost and eligibility for LEA awards. This, too, can be understood only with reference to the focus of the Pell and state grant programs. Low cost public institutions are in a relatively advantageous position with respect to the Pell grant program; the Pell covers the largest proportion of attendance cost at institutions with total cost below $3,500. Low cost private institutions are in a relatively advantageous position with respect to the Indiana state grant program; the state grant covers the largest proportion of attendance cost at institutions with tuition at or below the program cap of $4,624. Because of the linkage with federal and state programs, the largest aggregate LEA program spending is in the higher cost institutions in both the public and private sectors. To illustrate this point:

- Purdue University students will receive over $1 million in LEA grants in 1987-88.
- A relatively small number of students in the Indiana Vocational Technical Colleges will receive LEA awards in 1987-88.
- Some low cost private institutions will have no LEA recipients in 1987-88.

The overall impact of the LEA program on educational financing in Indiana will be significant. More that 11,000 students will receive LEA awards in 1987-88 ranging from $200 to $1,250. The average award will be $555. In the aggregate, approximately $5 million of new money will be available to help Indiana students finance their post-secondary educations.

VI. USING RESEARCH IN DECISION-MAKING

What started with the Lilly Endowment Board's decision to help Indiana students finance their education, and ended with the implementation of the new Lilly Endowment Educational Award (LEA) program, is an interesting case study of the role of research in decision-making. The Endowment Board had a clear vision of its goal and a firm idea of its bottom line. The models described in this report played a key role in helping the Board determine how it would pursue its goal within the established bottom-line limits.

The findings of the Indiana Post-Secondary Education Financing Study offered general direction for potential targeting of additional student aid. However, the research model of that study lacked the power and precision necessary to determine what a specific formula approach would achieve in terms of typical awards per student, and what would be required in terms of aggregate spending. The projection model filled both of these needs and gave the Lilly Endowment Board a glimpse of what its gift might accomplish. The iterations of modelling gave the Board control over the policy parameters influencing bottom line spending.

Projections for the LEA program had the additional effect of influencing other decisions about spending for financial aid. Prior to the projection run, the General Assembly Budget Committee allocation seemed sufficient to achieve the desired higher level of support for students. However, intermediate projections for the LEA program showed that planned state spending would fall short of fully funding a program at 80 percent of need. These projections were communicated to SSACI staff and, through them, to leaders in the General Assembly. It is not entirely accidental that additional funds were added to the SSACI appropriation during the legislative session.

The simulation of various assumptions allowed the Lilly Endowment Board to weigh alternatives and, by the end of January 1987, announce with relative certainty that the LEA target was 43 percent of educational cost. While all who deal with Indiana student aid recognized that this criterion could change, early announcement of the target allowed campus financial aid officers to plan their packaging around a reasonably sure foundation of federal, state and LEA grants. This in turn may have encouraged early planning by students and parents -- and thereby may help achieve the broader goal of increased participation in post-secondary education.

WORKING WHILE STUDYING: DOES IT MATTER?

An Examination of the Washington State Work Study Program

by

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and

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May 1987

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Executive Summary

The purpose of this study is to examine the impact of working on the academic performance and persistence of a sample of full-time undergraduate students enrolled in Washington State's public and private colleges and universities.

The fundamental conclusion of the report is that work has no impact on the academic performance and very little impact on the academic progress of full-time undergraduate students in Washington's colleges and universities. Neither the number of hours worked nor the rate of pay has a strong impact on a student's grade point average, number of credit hours attempted, or the ratio of credits earned to credits attempted. For persistence, the working student, on average, will take slightly longer to complete college than the non-worker. Our estimate is that the additional time will be about one-third of an academic term. These findings are consistent with other research studies on the relationship between working and studying.

Other highlights include:

- The best predictor of college grade point average is high school grade point average
- The longer a student is enrolled, the higher the grade point average, regardless of work experience while enrolled
- Older students perform better academically than younger students
- Independent students perform better academically than dependent students
- Working in the State Work Study program is positively correlated with grade point average
- State Work Study students generally have higher grade point averages than College Work Study students or non-workers
- Students with high financial need do better when working in the State Work Study program
- Students who work have a higher course completion rate than non-workers

WORKING WHILE STUDYING: DOES IT MATTER?

An Examination of the Washington Work Study Program[1]

Introduction

Educators, parents, students and policy makers are becoming increasingly concerned about how families will meet the climbing costs of college. College cost increases in recent years, averaging nearly ten percent per year and nearly double the rate of inflation, threaten to restrict educational opportunity. Grant and loan programs are not keeping pace with cost increases, thus putting added pressure on families and students to provide a greater share of overall costs. In this climate, working while studying is becoming more commonplace and enjoys widespread support from policy makers.

Purpose of the Study

The purpose of this study is to examine the impact of working on the academic performance and persistence of a sample of full-time undergraduate students enrolled in Washington's public and private colleges and universities during the period from Fall 1983 through Spring 1985. The study focuses on the following questions:

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[1] This paper is based on a study of the Washington Work Study program conducted by Augenblick, Van de Water & Associates, Denver, Colorado. A copy of the full report may be obtained from the Washington Higher Education Coordinating Board, 908 East Fifth Avenue, Olympia, WA 98504.

(1) Do students who are employed part-time perform as well academically as those who are not employed?

(2) Is there a relationship between number of hours worked and academic performance?

(3) What impact does working part-time have on student persistence?

(4) Does location of work (on-campus versus off-campus) make a difference in academic performance or persistence?

(5) Does working in a career-related field make a difference in academic performance or persistence?

The Washington State Work Study Program

The Washington Work Study Program is the largest state sponsored work study program in the nation and the second oldest (behind Colorado).

The Washington Work Study Program was begun in 1974

> . . .to provide financial assistance to needy students attending eligible post-secondary institutions in the state of Washington by stimulating and promoting their employment, thereby enabling them to pursue courses of study at such institutions. An additional purpose of this program shall be to provide such needy students, wherever possible, with employment related to their academic interests[2]

Students are eligible to participate in the program if they are Washington residents who demonstrate financial need, are enrolled at least half-time in an eligible institution, are deemed capable of maintaining good academic standing, and are not pursuing a degree in theology.

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[2] Chapter 28B.12, section 28B.12.020, laws of Washington.

Summary of Research on the Impact of Working on Academic Performance and Persistence

Literature on the impact of work on student performance and retention is relatively scarce. The available literature tends to support the conclusion that part-time employment does not have an adverse impact on a student's grade point average, even if the student is on academic probation.[3] Too much work, however, does seem to have an adverse impact on student performance.[4] As Martin concludes,

> On-campus employment during a student's freshman year in particular seems to enhance the student's chances of completing school. Several additional studies show that student employment does not have a negative impact on a student's grade point average, provided that such work does not exceed twenty hours per week.[5]

Other studies focusing on retention or persistence generally conclude that some work increases the chances of a student persisting through a degree.[6] One study states that "available research supports that the retention and success of students are linked to 'meaningful involvements'while in school. Work experiences rank as one of the most common and productive involvements for all college students."[7]

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[3] See: Jerry Augsburger, "An Analysis of Academic Performance of Working and Non-Working Students on Probation at Northern Illinois University", The Journal of Student Financial Aid, Vol. 4, No. 2, June 1974; Judith F. Hammes and Emil J. Haller, "Making Ends Meet: Some of the Consequences of Part-Time Work for College Students", Journal of College Student Personnel, November 1983, pp. 529-534; J.B. Henry, "Part-Time Employment and Academic Performance," Journal of College Student Personnel, 1967, 8(4), 257-260; Albert B. Hood and Cheryl K. Maplethorpe, "Bestow, Lend, or Employ: What Difference Does it Make?" New Directions for Institutional Research, 1980, Vol. 7, No. 1, 61-73.

[4] See: Herta Teitelbaum, "Factors Affecting the Underachievement of Academically Able College Students," unpublished paper, October 1983 and Alexander Astin, Preventing Students from Dropping Out, San Francisco: Jossey-Bass, 1975.

[5] A. Dallas Martin, Jr., "Financial Aid", Chapter 11 in Increasing Student Retention: Effective Programs and Practices for Reducing the Dropout Rate, Lee Noel, Randi Levitz, Diana Saluri and Associates, San Francisco: Jossey-Bass, 1985, p. 206.

The Study Design

The full study design included three parts: a sample of institutional student records for students on State Work Study, College Work Study, and non-working financial aid recipients; a survey of campus administrators; and a survey of the students selected into the sample. Only the analysis of student records is covered here.

Student Record Data

Obtaining student records involved drawing a stratified random sample of financial aid recipients from a sample of colleges and universities in Washington state. The twelve institutions included in the study are:

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[6] See: Richard A. Voorhees, "Financial Aid and Persistence: Do Federal Campus-Based Aid Programs Make a Difference?", The Journal of Student Financial Aid, Vol 15, No. 1, Winter 1985, pp. 21-30; Dawn G. Terkla, "Does Financial Aid Enhance Undergraduate Persistence?, The Journal of Student Financial Aid, Vol. 15, No. 3, Fall 1985, pp. 11-18; Tullisse A. Murdock, "The Effect of Financial Aid on Student Persistence", paper given at the Association for the Study of Higher Education Annual Meeting, San Diego, February 1987.

[7] John R. Bazin and George Brooks, "The Work Experience Program - A Collaborative Effort Between Financial Aids and the Career Planning and Placement Center", The Journal of Student Financial Aid, Vol. 4, No. 3, November 1974, 25-29.

College/University

University of Washington
Washington State University
Eastern Washington University
Western Washington University
Lower Columbia Community College
North Seattle Community College
Spokane Community College
Spokane Falls Community College
Pacific Lutheran University
Seattle University
University of Puget Sound
Whitworth College

Drawing the Sample. The population to be sampled was all Fall 1983 full-time undergraduate financial aid recipients at the 12 participating institutions. The original data set, before editing, contained the following number of cases for each group:

a) Students receiving a State Work Study award:	1,001
b) Students receiving a College Work Study or Institutional Work Study award:	1,342
c) Students receiving financial aid but not working:	1,265
TOTAL	3,608

Data Preparation. The data set was edited to remove reporting and keypunch errors and to insure that values were in appropriate ranges. This effort resulted in 424 cases (12%) being eliminated from the file. The analysis tape subsequently contained 3,184 cases suitable for analysis.

Results of the Study

The issues of interest to this study relate to working. However, we discovered that many students who receive an annual work study award do not actually work in every academic term during the year of the award, therefore, we re-sorted the cases into three groups based on whether or not each student actually worked during each term. Students are classified as work study students only for those academic terms in which they actually worked. Using this procedure, the observations were re-sorted according to the following rules:

> Group One: State Work Study Only. Students who worked only under the State Work Study program are assigned to Group One only for those academic terms in which they actually worked.
>
> Group Two: College Work Study or Institutional Work Study. Students who worked in either College Work Study or were employed by the institution (through the financial aid office) are assigned to Group Two only for those academic terms in which they actually worked.
>
> Group Three: Non-workers. Students who did not work during a given academic term, even though they may have received a work study award, are assigned to Group Three for that term. Similarly, students who received financial aid (either grant or loan) but did not work under any work study program are assigned to Group Three for every term.

In this way a student's assignment to a group varies with each academic term depending on whether or not the student worked during that term. All other characteristics of the student, e.g, grade point average, credit hours attempted, credit hours earned, and demographic characteristics, also moved with the student, changing by term where appropriate. For each semester student, therefore, there are a maximum of four separate data records representing the four semesters covered in the study. For each quarter student there are a maximum of six separate data records representing the six quarters covered in the study. Numerous students will have less than the maximum possible number of data observations because they graduated, transferred, or dropped out during the period under study. In addition, because we focused on full-time students, students who entered the sample as full-time students but later dropped to part-time status were eliminated from the analysis for any academic term in which they were enrolled part-time.[8]

Because students who received a work study award frequently did not work in each of the academic terms during the year of the award, the distribution of cases by group changed significantly. Using the approach described above, the 3,184 cases on the analysis tape represented 11,671 valid data observations that were distributed into the three groups as follows:

		Number of Observations	Percent
Group One (worked in State Work Study)	-	2,154	18.5%
Group Two (worked in CWS or IWS)	-	2,892	24.8
Group Three (non-workers)	-	6,625	56.7
Total Observations		11,671	100.0%

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[8] This decision was made after the regression results for all students (including part-time enrollees) showed that part-time students made no statistically significant differences in the regression results.

Overview of the Data

As a first step, we examined how closely the study sample resembles the total population of financial aid recipients in the state. In general, students in the sample population are younger, report slightly higher parental income, are proportionately distributed by sex, and are more likely to be dependent students than the statewide population of financial aid recipients.

As a second step, we examined the demographic and financial aid characteristics of the three groups to be analyzed: (1) those working under the State Work Study Program; (2) those working under either the College Work Study Program or institutional work study programs; and (3) those receiving financial aid but not working. Table One compares the three groups on basic demographic and financial aid characteristics. Students in State Work Study tend to be slightly older, are more likely to be independent of parental support, earn more per hour while working, have higher need, receive more in grant aid, and receive less in loan aid. Percentages in the table are based on data observations, rather than individual cases. The major impact of this method is that some students in one group will show work study awards in programs outside that group because the data observations cover each academic term over a two year period. For example, a Group One student (State Work Study) may show a College Work Study award. This occurs when a student switches from one program to the other between the two academic years under review.

TABLE ONE

COMPARISON OF FINANCIAL AID RECIPIENTS IN THE STUDY, BY GROUP, 1983-84

	Group One (SWS)	Group Two (CWS/IWS)	Group Three (Non-workers)
Average Age	23.0	21.9	22.7
Sex			
Male	43.1%	43.2%	49.7%
Female	56.9%	56.8%	50.3%
Race			
White	78.5%	83.3%	75.8%
Other	21.5%	16.7%	24.2%
High School GPA[9]	3.28	3.27	3.28
Dependency Status			
Dependent	48.4%	62.1%	54.0%
Independent	51.6%	37.9%	46.0%
Marital Status			
Married	7.8%	6.4%	8.0%
Single	92.2%	93.6%	92.0%
Parental Income	$20,794	$21,456	$21,087
Year in School			
Freshman	16.3%	21.4%	16.5%
Sophomore	30.0%	33.3%	24.9%
Junior	25.4%	20.8%	24.1%
Senior	28.6%	24.5%	32.3%
Average Hours Worked Per Week	11.7	11.3	-0-
Wages ($/hr)*	$4.77	$3.89	$ -0-
Need	$5,767	$5,497	$5,175

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[9] Covers students enrolled in four year colleges only; two year college students' records do not contain information on high school grade point average.

TABLE ONE Continued

COMPARISON OF FINANCIAL AID RECIPIENTS IN THE STUDY, BY GROUP, 1983-84

	Group One (SWS)	Group Two (CWS/IWS)	Group Three (Non-workers)
Grant*	$1,841	$1,805	$1,590
Loan*	$ 950	$ 813	$1,194
College Work Study			
Award*	$ 715	$1,079	$ 741
% of Observation with non-zero amount	17.7	73.2	12.7
Inst. Work Study			
Award*	$ 308	$ 660	$ 703
% of Observations with non-zero amount	7.0	24.1	7.3
State Work Study			
Award*	$1,426	$1,059	$ 901
% of Observations with non-zero amount	90.2	19.6	14.8

* Award is the average for those receiving any non-zero amount.

For State Work Study and College Work Study/Institutional Work Study, the distribution of observations by average hours worked per week and wages is shown in Table Two. Two-thirds of all work study students work between 10 and 20 hours per week. Students in College/Institutional Work Study are more apt to work less than 10 hours than students in State Work Study (34.3% versus 27.2%). State Work Study students have higher hourly wages than College/Institutional Work Study students. While most students in both programs earn between $3.50 and $5.00 per hour, one-third of State Work Study students earn more than $5.00 per hour while 27.5 percent of College/Institutional Work Study students earn less than $3.50 per hour.

TABLE TWO

AVERAGE HOURS WORKED PER WEEK AND HOURLY WAGES, BY PROGRAM

	Average Hours Worked Per Week			
	1-9	10-14	15-20	21-40
State Work Study	27.2%	50.0%	20.8%	1.9%
College/Institutional Work Study	34.3%	41.7%	21.8%	2.2%
Total	31.3%	45.2%	21.4%	2.1%

	Wages Per Hour		
	< $3.50	$3.50 - 5.00	> $5.00
State Work Study	8.4%	58.0%	33.6%
College/Institutional Work Study	27.5%	64.1%	8.5%
Total	19.4%	61.5%	19.1%

Results of the Regression Analyses

The data set for this study is "rich" in providing raw material for analysis. There are many hypotheses that could be tested using these data in regard to a variety of questions about the factors that influence academic performance and persistence. Our focus, however, was on the impact of work on academic performance and persistence. Our approach to these questions centered on two lines of inquiry. First, we wished to examine the impact of work on academic performance. In order to do this, we used the student's grade point average (GPA) as the indicator of academic performance. Second, we wished to examine the impact of work on student persistence. We had two choices: (1) to examine the differences between those students who persisted and those who did not; and (2) to examine the differences in rate of progress toward a degree. Initially we looked at the differences between those who persisted and those who did not. Unfortunately, the size of the population of non-persisters was too small (N = 258) to make further analysis worthwhile. Therefore we concentrated on the second approach through an analysis of credit hours attempted and the ratio of credit hours earned to credit hours attempted. Table Four provides the mean and standard deviation, by group, for each of the variables that indicate academic status (later to be used as dependent variables in the regression analysis). State Work Study students (Group One) had a slightly higher mean GPA than the other two groups, attempted the same number of credit hours per term, and completed the same ratio of credit hours. Overall there is little difference among the three groups.

TABLE FOUR

SUMMARY DESCRIPTION OF DEPENDENT VARIABLES USED IN REGRESSION ANALYSES

Variable	Group One (SWS)		Group Two (CWS/IWS)		Group Three (Non-workers)	
	Mean	s.d.*	Mean	s.d.*	Mean	s.d.*
GPA	2.94	.81	2.84	.74	2.80	.90
Credit Hours Attempted	15.10	2.23	15.05	2.48	15.16	2.43
Ratio of Credit Hours Earned to Credit Hours Attempted	.92	.25	.93	.19	.90	.23

* s.d. = standard deviation

Our next step was to examine the simple correlations between the academic variables and work variables. Work may be examined along a variety of dimensions: average hours worked per week, average hourly rate of pay, type of work, or location of work. We did not have information on the type of work students engaged in, for example, laboratory work, cafeteria work, or tutoring, so this dimension could not be included in the analysis. Originally we intended to use participation in the State Work Study program as a proxy for working off-campus. An edit check of work location on the data tape showed, however, that only eight percent of State Work Study students records provide work location information and, of these, one-half indicated that they worked on campus. We concluded that this information was unreliable and therefore eliminated this dimension from our analysis. The analysis subsequently focused on average hours worked per week and average hourly wage. Table Five shows the correlation between the dependent variables and the two work variables. All of the correlations are very low, indicating very weak relationships between the work variables and academic variables.

TABLE FIVE

CORRELATION BETWEEN AVERAGE HOURS WORKED PER WEEK, WAGES, AND THE DEPENDENT VARIABLES

	Average Hours Worked/Week		Wages	
Variable	SWS	CWS/IWS	SWS	CWS/IWS
GPA	.06	.08	.05	.05
Quarter Hours Attempted	-.02	.01	-.01	-.02
Ratio of Credit Hours Earned to Credit Hours Attempted	-.05	-.03	.06	-.03

Next we examined the simple correlations between the academic variables and non-work-related variables. The variables were selected based on our review of the literature and their availability in the data set. These correlations are shown in Table Six. An examination of the GPA column shows that high school GPA is the most highly correlated variable with college GPA, indicating that, among these variables, it is the most important determinant of academic performance in college yet it only explains about eleven percent of college GPA. Several other variables, while less significant than high school GPA, contribute positively to college GPA: older students tend to do better than younger students, whites do better than other students, independent students do better than dependent students, and students in general increase their GPAs as they move through college. Sex, marital status, and level of financial need are insignificantly related to college grade point average.

None of the non-work-related variables show significant correlations with grade point average, credit hours attempted or the ratio of credit hours earned to credit hours attempted. This indicates that other variables, not included in this study, are influencing these two variables. It is possible that a low correlation is masking a curvilinear relationship between the variables. We examined scattergrams showing the graphic relationship between each independent variable and the three dependent variables. A visual examination of the scattergrams showed that there was very little relationship, either linear or curvilinear.

TABLE SIX

CORRELATION OF DEPENDENT VARIABLES WITH NON-WORK-RELATED VARIABLES

	GPA		Quarter Hours Attempted		Ratio	
Non-work Variable	SWS	CWS/IWS	SWS	CWS/IWS	SWS	CWS/IWS
High School GPA	.33	.35	.07	.06	.10	.15
Age	.08	.05	-.03	.01	.01	-.04
Sex	-.02	-.05	.01	.01	-.03	-.04
Race	.14	.11	-.01	.01	.08	.14
Year in School	.12	.15	.00	-.01	.07	.06
Dependency	.09	.08	.00	.01	-.01	-.03
Marital Status	.03	.10	.01	.02	.02	.07
Need	.02	.03	-.04	-.04	-.01	.00

We used multiple regression analysis to incorporate as many variables as possible into the analysis model in order to observe the impact of work when controlling for all other variables. Three separate regression analyses were made using each of the three different academic variables as the dependent variables in the regression equations: (1) grade point average; (2) credit hours attempted; and (3) the ratio of credit hours earned to credit hours attempted.

The first regression model sought to predict a student's grade point average using all the variables for which we had data. This model originally included data on a student's high school grade point average. With this variable in the model we were able to explain only fourteen percent of the variation in GPA and high school GPA was the most important single variable. In this model, neither of the work variables turned out to be significant at the .01 level. However, since high school GPA information was not available for many and the missing cases were all students in two year colleges, we decided to re-run the regression without high school GPA in order to include the two year college students. The results of this regression are shown in Table Seven. The R-square value of .05 indicates that the variables in the model are explaining only five percent of the variation in college GPA. The intercept values, ranging from 2.37 to 2.52, indicate that variables other than those in the model are primarily responsible for explaining college GPA. Of those variables that are significant in explaining college GPA, the work variables are less important than other variables, as indicated by the standardized estimate. The parameter estimates, given in parentheses in the table, estimate the contribution of that variable to the explanation of GPA. For example, the total hours worked variable has a parameter estimate of 0.010 which means that for every ten hours per week a student works, his GPA is predicted to increase one-tenth of a point.

TABLE SEVEN

RESULTS OF REGRESSION MODEL WHEN PREDICTING GPA (WITH HIGH SCHOOL GPA OMITTED)

	SWS	CWS/IWS	Non-workers	Overall
R-Square	.05	.06	.03	.03
Intercept	2.37	2.37	2.50	2.52
Variables[10]	Yr. in sch. (0.108)	Yr. in sch. (0.107)	Race (0.231)	Yr. in Sch. (0.092)
	Race (0.267)	Race (0.216)	Yr. in Sch. (0.079)	Race (0.223)
	Dependency (0.119)	Avg. Hours Worked/Week (0.012)		Avg. Hours Worked/Week (0.008)
	Avg. Hours Worked/Week (0.010)	Marital Status (0.259)		Need (-0.00001)
		Sex (-0.109)		Sex (-0.047)
		Wages (0.0005)		

Having examined the impact of work on academic performance, we next focused on the impact of work on student persistence. Persistence typically is defined as remaining enrolled through the completion of a degree program. Therefore, initially we sorted the study population into two categories: those who remained in college or completed a degree program during the terms under review (persisters) and those who did not remain enrolled through a degree (dropouts). Through this procedure we discovered a number of students who were missing in a particular term but reappeared in a subsequent academic term, leading us to create a third category (stopouts). Table Eight below shows the distribution of the three categories above by the three groups under study (SWS, CWS/IWS, and non-workers). The distribution shows a low level of dropouts and stopouts. This may be attributable to our earlier decision to capture as much information as possible about students' work experiences and therefore adopting the observational approach to the analysis. In that sense, the distribution of dropouts and stopouts is understated. The alternative was to group cases, rather than observations, by their persistence. The problem with that approach is that we could not characterize the work experience of each case. For example, an individual who dropped out in the fifth term was likely to have had a variety of work experiences in the prior four terms. We felt it was more important to link each term's work experience with that term's persistence, requiring us to base our analysis on observations.

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[10] Selected if statistical significance >.01, ordered by size of standardized estimate (largest to smallest), with parameter estimate given in parentheses.

TABLE EIGHT

DISTRIBUTION OF OBSERVATIONS BY PERSISTENCE CATEGORY*

	Group One (SWS)	Group Two (CWS/IWS)	Group Three (Non-Workers)
Persisters	91.5%	93.6%	91.0%
Dropouts	2.1	1.3	2.7
Stopouts	6.4	5.1	6.3

* This distribution is based on observations, not individual students; therefore an individual who successfully completes three semesters and then drops out, shows up three times as a persister and once as a dropout.

Although the percentage of dropouts was very low, the percentage for working students was lower than the percentage for non-workers. Because the number of dropouts was so low, we concluded that it was inappropriate to compare the characteristics of dropouts to persisters. Instead, we chose to examine the rate of progress for persisters. To do this, we examined the number of credit hours attempted and the ratio of credit hours earned to credit hours attempted.

The second regression sought to predict the number of credit hours attempted. In this model, the high school GPA variable is excluded and students who dropped to part-time status are excluded. This regression shows that there is no relationship between the variables included in the model and quarter hours attempted (R-square = .01). The only variables with statistically significant results for this regression were need and marital status (see Table Nine). Need showed a parameter estimate of -0.00006, indicating that a student with need of $5500 would be predicted to have a grade point average .33 lower than the non-need student. Marital status showed a parameter estimate of .288, indicating a married student's GPA would be predicted to be .288 higher than a single student. We re-ran this regression with part-time students included and only marginally increased the R-square value. In this model, college GPA showed a significant parameter estimate, indicating that the better the prior academic performance, the more credit hours a student is likely to attempt. Like the prior model, neither of the work variables turned out to be statistically significant. The correlation matrix, however, shows a weak positive relationship between financial need and work, indicating that the more need a student has, the more hours he is likely to work.

TABLE NINE

RESULTS OF REGRESSION MODEL WHEN PREDICTING QUARTER HOURS ATTEMPTED (WITH HIGH SCHOOL GPA OMITTED)

	SWS	CWS/IWS	Non-workers	Overall
R-Square	.01	.01	.01	.01
Intercept	15.89	15.20	15.28	15.31
Variables[11]	None	Need (-0.00007)	Need (-0.00006)	Need (-0.00006) Marital Status (.288)

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[11] Selected if statistical significance >.01, ordered by size of standardized estimate (largest to smallest), with parameter estimate given in parentheses.

The third regression sought to predict the ratio of credit hours earned to credit hours attempted. Table Ten shows the results of this regression. The R-square values are modest (.13 to .21), indicating low explanatory value for this model. Of the variables contributing to the explanation, college GPA is the most significant, indicating that students with higher GPAs tend to complete a higher proportion of credit hours attempted. For the State Work Study students (Group One), total hours worked shows a parameter estimate of -0.345, indicating that working tends to depress the ratio of credit hours earned to credit hours attempted. For example, every ten hours of work depresses the ratio by 3.45 percentage points. Over the course of a four year college career this would translate into a loss of 4.8 credit hours.

TABLE TEN

RESULTS OF REGRESSION MODEL WHEN PREDICTING RATIO (WITH HIGH SCHOOL GPA OMITTED)

	SWS	CWS/IWS	Non-workers	Overall
R-Square	.13	.18	.25	.21
Intercept	62.9%	71.3%	56.1%	59.2%
Variables[12]	GPA (10.083)	GPA (9.639)	GPA (12.049)	GPA (11.210)
	Tot Hrs Work (-0.345)	Race (3.890)	Yr. in Sch. (1.862)	Wages (0.007)
		Marital Status (3.825)	Race (4.024)	Race (3.864)
			Age (-0.222)	Yr.in Sch. (1.327)
				Tot Hrs Work (-0.161)
				Dependency Status (-2.134)
				Age (-0.177)

Our conclusion is that work has no impact on the academic performance and very little impact on the academic progress of full-time undergraduate students in Washington's colleges and universities. Neither the number of hours worked nor the rate of pay has a strong impact on a student's grade point average, number of credit hours attempted, or the ratio of credits earned to credits attempted. The small impact that is present is positive for grade point average. For persistence, the regressions show that the working student, on average, will take slightly longer to complete college than the non-worker. However, our estimate is that, on average, the additional time required will be about one-third of an academic term.

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[12] Selected if statistical significance >.01, ordered by size of standardized estimate (largest to smallest), with parameter estimate given in parentheses.

Having reached this conclusion, we felt it was important to examine several of the independent variables in relationship to average hours worked per week. To do this, we prepared a series of crosstabulations. The most interesting observations from the crosstabulations include:

- upperclass students have higher grade point averages
- State Work Study students generally have higher grade point averages than College Work Study students or non-workers
- students who perform well in high school also perform well in college
- grades improve as students work more hours per week (up to 20)
- older students do better than younger students
- independent students perform better than dependent students
- students with high financial need do better when working in the State Work Study program
- students who work have a higher course completion rate than non-workers

In general, the crosstabulations for credit hours attempted and the ratio of credit hours earned to credit hours attempted show a high degree of consistency across sex, age, need, and financial status (dependent versus independent).

Summary and Conclusions

The purpose of the study was to examine five questions about the impact of working on academic performance and retention. Our conclusions are given below.

Question 1. Do students who are employed part-time perform as well academically as those who are not employed?

Overall, the answer is yes. The regression analysis shows that work (as measured in number of hours worked per week and wages paid) is not a factor in predicting a student's college grade point average. That is, there is no relationship between working and grade point average. Of all the variables we included in the regression equation, high school grade point average is the best predictor of college grade point average. The number of hours worked was a significant variable in predicting grade point average and its effect was positive. However, in practical terms the number of hours worked had very little impact on grade point average. The analysis of the crosstabulations shows that the longer a student is in school, the higher the grade point average, regardless of the work experience. For workers, grade point average generally increases with number of hours worked per week (up to 20), except for students over 29 years of age in the State Work Study program.

Question 2. Is there a relationship between the number of hours worked an academic performance?

The multiple regression results show that there is a positive, yet weak, relationship between number of hours worked and academic performance. Analysis of the crosstabulations shows that freshman, sophomores and seniors who work 10-20 hours per week do slightly better academically than non-workers or workers who work either few hours (less than 10 hours per week) or many hours (more than 20 hours per week).

Question 3. What impact does working part-time have on student persistence?

The multiple regression results indicate that there is no relationship between the number of credit hours attempted and working. There is, however, a slightly negative relationship between the ratio of credit hours earned to credit hours attempted and working. On average this relationship translates into working students taking one third of one term longer than non-workers to complete a degree program.

Question 4. Does location of work (on-campus versus off-campus) make a difference in academic performance or persistence?

We did not have a direct measure of this variable. The original assumption was that working in the State Work Study program was a proxy for working off-campus. The data reported for this variable in student records was incomplete. The crosstabulations show that students in State Work Study tend to have higher grade point averages than non-workers or students in

College/Institutional Work Study. If the original assumption is correct, then working off-campus in the State Work Study program is correlated with increased grade point average.

Question 5. Does working in a career-related field make a difference in academic performance or persistence?

The State Work Study regulations stipulate that, where possible, employment is to be related to the student's academic major or career area of interest. Since there is no corresponding rule governing the College/Institutional Work Study programs, we used this rule as a proxy for the career-related work variable. The crosstabulations show that students in the State Work Study program have a higher grade point average than their colleagues in College/Institutional Work Study at all levels of work and in all class years.

In the end, the analysis leads to the overall conclusions that there is no relationship between work and academic performance and only a slight negative relationship between work and progress toward a degree.

Student Employment Patterns
and the Role of Earnings
in Financing
the Cost of Attendance

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EXECUTIVE SUMMARY: Student Employment Patterns and the Role of Earnings in Financing the Cost of Attendance

Jobs do more than produce income. On one hand, they compete with educational, personal and social activities for students' time. On the other hand, jobs can provide valuable contributions to students' educational objectives. Job opportunities exist only if employers make a decision to hire.

Based on a Minnesota Higher Education Coordinating Board study, 63 percent of the State Scholarship and Grant Program applicants had term-time jobs. Employment rates were higher among applicants attending Twin Cities area institutions than among applicants attending institutions outside the Twin Cities area. One-fifth of the applicants contacted said that they would like to work but did not hold jobs when interviewed.

The average applicant financed between 37 and 50 percent of his or her reported cost of attendance with current income, depending on type and location of institution attended. Applicants employed during the spring term reported covering 50 percent of their cost of attendance while unemployed applicants covered much less with current income. Unemployed applicants made greater use of loans and savings than applicants holding jobs during the spring term.

Student Employment Patterns
and the Role of Earnings
in Financing
the Cost of Attendance

I. INTRODUCTION

Jobs are an important part of most students' lives. Although they may compete with educational activities for students' time, jobs help students finance a significant portion of their cost of attendance. Jobs also enable students to learn job skills and to accumulate work experiences that can enhance the educational experience.

Students attending post-secondary institutions in the United States are expected to finance a significant portion of their cost of attendance with past, current and future income. Concern about defaults and loan levels is limiting the use of educational loan capital. This restricts the amount of the cost of attendance that students can defer and finance with future income.

Past income is only available if students have made savings and investment decisions before enrolling. Since no program can redo the past, past income is not a source for students confronted with a cost of attendance that is larger than their available resources. Prepaid tuition and college savings plans now being considered seem to focus exclusively on providing a means for parents to take a greater role rather than encouraging students to prepare to finance some or all of their cost of attendance with past income.

Current income, by default, has become the primary expandable source of student resources. Students need jobs to convert their time into income. There is a limit to how much current income can be earned. There are only so many hours in the day. Further, student wage rates tend to be low. Jobs reflect employers' investment decisions and projections of future economic conditions. Some jobs programs provide an incentive for employers by paying part of the wages a student earns.

Available financial aid research does not provide the information needed to determine the extent to which students rely on current income. Nor does it provide information on how much current income can be stretched and the implications of expanding reliance on current income. Further, it does not provide knowledge about the methods of developing or finding job opportunities. This paper explores these issues. This paper also reports on related empirical evidence from a survey conducted by the Minnesota Higher Education Coordinating Board. Results from other studies are used to corroborate or extend the survey results.

The Coordinating Board study surveyed students attending a wider range of institutional types than usually included in financial aid research. Students attending two-year, four-year and doctoral institutions were included. The two-year institutions include a number of vocational post-secondary institutions. Also, students attending public and private institutions were surveyed. While many studies have looked at the employment status of students, few have focused on the characteristics of student jobs. There are few published results of studies relating current income to the financing of the reported cost of attendance. This paper adds to the research literature in these areas.

This paper has two distinct parts. It is constructed so that they can be read independently. Section II provides a detailed overview of the job market and what policy makers need to consider in developing job policies for students. It looks at the factors students take into consideration in deciding attendance and financing strategies. Section II also explores the considerations employers make in determining whether to create jobs that would be accessible and attractive to students. The roles of post-secondary institutions and government in labor markets are explored as well.

The second part presents information about the Minnesota Higher Education Coordinating Board's survey of State Scholarship and Grant Program applicants. The methodology is described in Section III. Sections IV, V, and VI present the results regarding the term-time employment status of students, characteristics of students' jobs, and the proportion of students' reported cost of attendance financed by current income. A final section explores some of the implications that can be drawn from the reported results.

II. BACKGROUND

To have current income, a student has to choose to work and then must find an employer willing to hire him or her. This section reviews the considerations students make, either explicitly or implicitly, in determining if they wish to work and the types of jobs they will seek. Also, this section reviews the considerations of employers in determining if jobs will be created. Further, the efforts of post-secondary institutions and government to expand job opportunities for students are reviewed.

STUDENTS' DEMAND FOR JOBS

Students' demand for jobs reflects (1) the strategy of attendance and financing they have selected, (2) their need for income to finance the cost of attending a post-secondary institution and (3) their need to develop job skills and work experiences that will be valuable after completion of the educational program.

Financing and Attendance Strategies Used by Students

Students use different strategies for financing their share of the cost of attendance. The strategy chosen will affect the types of jobs a student will seek and accept. Alternatively, the availability of jobs will affect the financing and attendance strategy chosen.

Attend Full-Time Part-Year. Some follow the traditional approach of attending full-time nine months per year. Students following this strategy need to find two (or more) quite different jobs each year. During the school year, they try to work part-time if a convenient job can be found. If such jobs are not available, then students will likely have to borrow more than they had intended.

During the vacation months, they try to work full-time. The amount of money they accumulate depends on the type of job found, the hours worked and the living costs incurred. If appropriate jobs are not available, then they will either draw more from loans to fill in for the lack of current income or follow a different attendance strategy.

At 20 hours per week, 38 weeks per academic year, and a wage rate of $3.35 per hour, the minimum wage at the time of this study, a student could earn $2,546 during the term. From this, a student will net after taxes about $2,200.

During vacation periods, by working 40 hours a week at $3.35, a student could earn about $116 a week after taxes. Since the student would be expected to finance living costs during vacations, the net would be $20 per week if living costs were $96 per week. For students able to work 12 weeks, the net vacation earnings would be $240. Of course, if the student finds someone to provide room and board, the net can be higher.

The net annual earnings at minimum wage would be about $2,500. For students earning $4.25 per hour and working 20 hours during the term and 40 hours during vacations, they would have net annual earnings of $3,400.

Attend Full-Time Full Year. Some students focus primarily on completing a post-secondary education. They will attend 12 months per year in order to finish in the shortest possible time. Many of these students will finance much of their education from future income. Many of these students will not be interested in term-time employment.

Some of the new educational loan programs will encourage students to pursue this strategy if they decide to borrow at all. Since the interest is capitalized instead of being financed by the government, interest obligations accumulate while students are attending. This will encourage students to complete in the shortest possible time.

Attend Part-Time Part or Full Year. Some students choose a strategy of financing their post-secondary education out of current income. These students often attend part-time in order to maintain a permanent job. While the job can be part-time, it is viewed by these students as a primary commitment 12 months a year. These students will want a different type of job or jobs than students following other patterns of attendance and financing. These students adjust their registration level depending on available employment opportunities and the cost of attendance.

Limitations. Each of these strategies can be a rational approach to financing the cost of attendance. Not all strategies are available to all students. Newly enrolled students often lack knowledge of the local job market. Many postsecondary institutions are located in areas with few off campus job opportunities. Some programs of study do not facilitate part-time enrollment. Students attending institutions with high tuition and fee charges are more likely to rely on future income. Students with their own families often need to live in the same community 12 months a year.

Conclusion. A state or institutional financial aid jobs policy should reflect the needs of students using different strategies of attendance and financing. Financing expectations could influence the selection of a strategy. Thus, student employment patterns and financial aid programs need to be evaluated in terms of their impact on educational objectives as well as financing objectives.

Students' Allocation of Time

Education requires a personal commitment of time and effort. Nothing can substitute for personal time and effort in the learning enterprise. Students can usually improve their educational achievement and performance by investing more time. Students must decide how well they want to do. More study effort leaves less time for other activities. Of course, students who are more efficient learners have more time for other activities. But, in the end, learning requires personal time that cannot be devoted to other activities.

Students need to maintain personal well-being. Sleeping, eating, and mental health breaks require time. Individual students have his or her own needs. Unless these needs are met, students will not be able to function effectively.

Students participate in religious, civic, and cultural activities to maintain a balanced lifestyle. These activities enhance their quality of life and contribute to their formal education in important ways. These activities also provide students with opportunities to develop skills and pursue interests valuable in future personal, family, community and career activities.

Students have family and social commitments that they need to fulfill. Many students are able to minimize their family commitments and combine their social commitments with other campus activities. An increasing number of students, for example, have dependent children. They are not able to minimize their commitments while attending. Further, older students are likely to continue living outside the campus community while attending. They are not able to combine their social lives with campus activities as easily.

A number of research studies have looked at the impact of job commitments on educational performance. Dixon, in her review of the literature on term-time employment reported that "academic performance is not harmed by the student working part-time, and in fact, may be enhanced (p. 259)." Most of the research suggests that working 15 to 20 hours per week, has little or no negative impact on educational performance. At levels above 20 hours per week, the results appear to be mixed.

Dixon also reported that term-time employment positively affects persistence. This conclusion holds even for employment levels above 20 hours per week. While the higher level of employment commitments might negatively impact educational achievement, employment that results in meaningful involvements while in school improves persistence, a type of educational achievement.

Bella and Huba looked at the relationship between type of work (work-study, university employment and food service) and academic achievement at one university. The results indicate "that there are no significant differences among the (grade point averages) of students who worked in different types of jobs and those who did not work at all as measured at the end of each academic year (p. 26)." This suggests that the type of job does not have an effect on educational performance.

Roles of Jobs in Students' Lives

In selecting a financing and attendance strategy and allocating his or her time, a student needs to consider the many benefits of having a job. Producing income is the most obvious one. Policy makers must recognize the whole array of benefits if financial aid policy is to be consistent with general educational policies and student behavior.

Jobs provide training. This is especially important for students who have not had prior employment experience. Not only does a job help students develop technical skills, it also helps them learn about employers' expectations, work cultures and human relations. Even for students who have had prior employment experiences, additional employment experience often enhances their employment histories and thus, career potentials.

Jobs allow students to integrate theory and practice. This can occur only if the job relates to courses or programs students are pursuing. Cooperative education, for example, is one concept of formally providing work experiences that are part of a curriculum. Students often independently pursue job opportunities related to their educational experiences. Their motivation is usually to maximize earnings potential. The effect still is the integration of theory and practice.

Persistence is related to the extent to which students identify and are integrated into the life of the institution. Jobs seem to be a particularly good means of improving student persistence (Dixon, p. 259-260). This benefit appears to be limited to on campus jobs.

Work promotes intellectual, educational, personal, social, vocational, and professional growth (Dixon, p. 260). This suggests that jobs have an educational purpose beyond concern about careers and financing the cost of attendance.

SUPPLY OF JOBS

For employment to exist, the job must benefit the employer as well as the employee. Students, for the most part, choose part-time and part-year jobs. This limits the types of jobs students are interested in pursuing. This also limits the types of employers willing to consider hiring students.

Employers' Needs

Employers' main concern is the success of their organizations. Employers expect all employees to contribute more than the cost of employing them. Many employers accommodate students' needs for flexibility as a means of helping students. But this is done within the context of the employee's value being greater than the cost of employing him or her.

Employers often make substantial investments in their employees. In many settings, employees do not start making positive contributions until they are on-the-job for a while. If one of these workers quits before contributing more than the initial investment, then an additional financial burden has been put on the employer. Students looking for part-year jobs are not very attractive in these settings.

Most employers screen applicants to find the best people available. Previous work experience and proven job skills often lead the list of criteria used to evaluate applicants. Those students with limited employment experience will be less attractive to employers.

Most organizations need a steady number of workers year around. Many employers require a permanent work force. Providing time and schedule flexibility required by most students is inconsistent with efficient organization in many work places. For example, every position of a production line must be filled before anyone on the line can contribute. Students on campus only nine months a year and needing part-time jobs do not provide such a labor force.

Most jobs are not portable; they usually must be done at the site of the employer or customer. Even when transportation is available, the time and cost of traveling lessens the value of a job. Part-time jobs have correspondingly higher per work hour overhead costs for both the worker and the employer. To the extent students are reluctant to spend time traveling, the availability of jobs on or near campus is an important determinant of students' current income earning potential.

Availability of Part-Time Jobs

Job openings fluctuate with economic conditions. Although more part-time workers are employed on the downside of the business cycle, many of these part-time workers are former full-time workers. Not only would students not be recruited for these jobs, but those that had part-time jobs would probably be laid-off before the hours of former full-time workers would be cut. Thus, what looks like greater opportunities for part-time workers may actually be fewer opportunities for students and other transient workers.

On the upside of an economic cycle, employers often add temporary workers first and wait to see if the improved situation lasts. The workers added might be part-time. Employers often recruit workers who likely would accept permanent positions if the improving economic conditions continued. As a result, students also are less likely to benefit.

In many communities, the student population is a major part of the community. Their labor force participation affects the availability of jobs for the remainder of the community. While the post-secondary institution makes a major contribution to the city's economy, student workers can drain a significant number of jobs away from permanent residents.

Traditionally, many students depend on employment opportunities in organizations with fluctuating demand for labor or those that can rely on a transient labor force. Such organizations are inherently unreliable employers in the long-term because employment fluctuates with economic conditions. Therefore, they also are unreliable sources of earnings for students.

Some organizations can be structured in such a way as to employ part-time, transient workers effectively. Such organizations define the jobs, supervisory structure, training activities, remuneration packages, and career ladders accordingly. Part-time workers typically receive fewer benefits, thereby reducing the cost of employing them. Part-time student workers offer an extra advantage: they are not as likely to remain with an employer long enough to advance very far within the salary schedule. As a result, people looking for permanent, long-term jobs or careers usually will not be satisfied in these organizations. Thus, an employer must often choose between maintaining a steady cadre of workers or taking advantage of the availability of student workers.

Some organizations employ students as auxiliary workers. The jobs they fill are defined so that after a brief orientation, the worker is fully trained. Further, these jobs are not critical to the organization. The position can remain vacant for periods of time. This enables the employer to accommodate students' needs for job flexibility due to vacations and finals, for example. It also lowers the cost of turnover. These jobs usually are entry level positions that offer few opportunities for the worker to advance.

Some organizations hire student workers on a part-time or temporary basis as part of the screening process. Internships provide a clear contract of limited duration for students to learn something about the industry and the organization. Most importantly, these arrangements provide employers with an extended opportunity to review students as a potential employees.

Most part-time, temporary jobs are in the service sector, especially restaurants and retail establishments. Service industries are, by definition, dependent on the population they serve. Students attending post-secondary institutions located in areas with the population to sustain a large service sector will have relatively more part-time job opportunities.

Post-secondary institution location could have an impact on the current income earning potential of students. Students who choose a financing pattern that requires earning income while attending will find post-secondary institutions located in population centers more attractive. To the extent that this prevents students from choosing the post-secondary institution that best meet their educational needs, the goals of financial aid could be thwarted.

Effect of Subsidies

Jobs are not created because workers exist; jobs follow capital investment decisions of organizations. All organizations worry about the bottom line. Profit seeking firms are concerned about return to investors' equity; other organizations must stay within budget. No organization can operate as a jobs program for long without outside subsidies.

Employers respond to subsidies. Wage subsidies lower the cost of labor to organizations. This enables employers to hire workers who otherwise could not contribute more than their wage cost. Not all employers will follow this course, however. Some employers will respond by hiring more workers to increase their output. Others will increase the services provided to their clients and customers by hiring more workers. Some will pocket the subsidy by substituting subsidized workers for other potential employees. In any case, subsidies increase the number of jobs available for eligible students.

Work-Study Programs

Work-study programs provide subsidies to employers willing to hire an eligible student. These subsidies are intended to encourage employers to create more jobs than otherwise would exist. This concept has been implemented by the federal government, several states and a number of post-secondary institutions.

The federal College Work-Study Program provides jobs for undergraduate and graduate students who need financial aid. The federal government disburses funds to post-secondary institutions. Program restrictions limit employer and student participation. Employer participation is limited to nonprofit organizations and public agencies willing and able to provide the required matching funds. Only a student who can show need according to a need analysis can participate. In Fiscal Year 1985, the federal government awarded $649 million as part of this program. This is 21 percent of the federal spending for the Pell Grant Program (College Board). At the time of the survey, the program provided financial subsidies to employers to cover up to 80 percent of the salary costs.

In Fiscal Year 1985, 15 states funded a work-study program. Minnesota was only one of five states that spent more than $4 million. State work-study appropriations were about 19 percent of the federal allocations to post-secondary institutions in those states. So, even for the relatively few states that fund work-study programs, funding levels were relatively small (Davis).

Most state programs look like the federal College Work-Study Program. Some states have organized their work-study programs so that more employers are eligible to participate. Washington, for example, promotes its work-study program among businesses. The state suggests that business should seriously consider hiring productive cost-effective workers, workers that have a portion of their salaries paid by the state (Christoffel, p. 19).

The Minnesota Work-Study Program supplements the College Work-Study Program. In Fiscal Year 1985, $4.4 million was appropriated by the state. The employer for whom the student works must pay at least 20 percent of the total salary costs. Eligible employers include: (1) post-secondary institutions, (2) nonprofit, nonsectarian organizations, (3) handicapped persons, and (4) persons over 65 who employ a student to provide personal services in or about their homes.

Some post-secondary institutions fund an institutional work-study program. The primary effect of these programs is to reserve campus jobs for students who need financial aid.

Role of Post-Secondary Institutions in Student Labor Markets

Post-secondary institutions employment of students helps both. Student employees provide a flexible work force willing to work part-time and part-year jobs. Post-secondary institutions help students find jobs outside the institution to provide opportunities for more students to earn money and acquire job skills and work experiences. A few institutions have established auxiliary enterprises to create jobs explicitly for students.

Direct Employment. Post-secondary institutions hire students to provide services for other students as well as other clients of the institution. These jobs provide work experiences and help students finance the cost of attendance. Like any other employer, post-secondary institutions must limit their employment to what is required to run the institution. In addition, institutions must balance the need for a permanent work force with the benefits of employing students.

Students provide an attractive work force for the post-secondary institutions. Students come and go as institutions' demand for workers fluctuates. Since students are on campus, they can work split shifts easily. By establishing pools of students for each class of jobs (for example, the library circulation desk), post-secondary institutions can have a function fully staffed with part-time student workers.

In most cases, post-secondary institutions make special efforts to define job content and work requirements to accommodate students' other time demands. For example, not only are the jobs part-time, usually they are flexibly scheduled. Further, many supervisors accommodate students' other time commitments, especially during test periods.

The extent of employment opportunities on campus depends on the nature of the institution. Post-secondary institutions providing on campus housing and eating facilities, for example, can hire more students. Institutions with extensive research activities also will generate more jobs.

The extent of on campus employment also depends on the institution's priorities. Dixon (1985) reported the efforts of one university to expand job opportunities on campus for students. Among the problems they found were (1) misunderstandings on the part of students and supervisors about the conditions and expectations of employment, (2) lack of a formal grievance procedure for student workers, (3) unequal wage rates across campus, and (4) as many non-students employed in part-time jobs on campus as students. By eliminating these problems, this university expanded its capability to provide job opportunities to students.

Job Service. Post-secondary institutions help students find off campus jobs. Some institutions simply serve as a clearinghouse that provides information to potential employers and employees. Other institutions actively seek employers and encourage them to use the institution's services when it recruits part-time and temporary workers.

Cooperative Education. Cooperative education systematically integrates jobs into the curriculum, whereas jobs under work-study programs are often not directly related to studies. Cooperative education participants often receive academic credit for their employment experiences. In cooperative education, students are not required to have financial need to participate.

Only an estimated 2 percent of all students participate in cooperative education programs (Christoffel).

Other Employment Programs. A few post-secondary institutions have developed programs that assist students in developing or establishing auxiliary enterprises. These businesses sell goods and services to others on campus. These programs have been limited to a few institutions.

A few institutions have established programs that provide job opportunities for all students. A variation is to expect all students to work for the institution in return for lower tuition rates. These programs have several advantages for the student who desires to finance his or her cost of attendance this way.

III. THE COORDINATING BOARD STUDY

During 1985, the Minnesota Higher Education Coordinating Board conducted a survey of State Scholarship and Grant Program applicants. This survey was part of the Coordinating Board's study of student employment and work-study programs. This section outlines the survey methodology and statistical methodology used. The results are presented in the following sections.

SURVEY OF APPLICANTS

A survey of State Scholarship and Grant applicants was conducted in May and June of 1985. The survey collected information from students about their education and living expenses, their sources of financing for those expenses, and their employment patterns. The information on applicant financing and employment patterns was used in this paper. The information on educational and living expenses was used in Schoenecker and Setter. Data from the State Scholarship and Grant Program operation files were matched with the data from the applicant survey to obtain a more complete data set on each applicant. The program data included information on dependency status, the amount of family and student resources, the existence and amount of a state award and the expected parental and student contributions.

Population

The State Scholarship and Grant Program applicant pool was used as the population for this survey. The selection of this population made it possible to find and interview students easily. Since permanent addresses were maintained as part of the record, students selected could be contacted either through the institution attended or at the permanent address given.

The State Scholarship and Grant Program applicant pool included about 70 percent of all students eligible for the program in 1985. Eligible students in Fiscal Year 1985 were Minnesota resident full-time undergraduates attending eligible institutions. Further, these students were considered to be the most needy. Thus, using this population allowed a focus on the students of greatest concern for financial aid policy.

Sample

A stratified random sample of State Scholarship and Grant Program applicants eligible for the program in spring term 1985 was surveyed. The applicant population was divided into five groups: (1) applicants attending four-year institutions in the Twin Cities area, (2) applicants attending two-year institutions in the Twin Cities area, (3) applicants attending four-year institutions outside the Twin Cities area, (4) applicants attending two-year institutions outside the Twin Cities area, and (5) applicants attending the University of Minnesota-Twin Cities, the only doctoral institution in Minnesota. These groups were selected so that differences, if any, between the

Twin Cities area and the rest of the state and among two-year, four-year, and doctoral institutions could be identified.

Within each of the first four groups, five post-secondary institutions were selected. The probability of an institution being selected was in direct proportion to its number of State Scholarship and Grant Program applicants in the group. Institutions were drawn without replacement.

A random sample of applicants was drawn within each institution so that there would be about 150 observations for each group. Applicants were contacted in the order they were drawn. If an applicant was not available, refused to participate, or was no longer a student, the next applicant on the list was contacted. Only 22 applicants refused to participate. The distribution of applicants in each group sample reflected the distribution of State Scholarship and Grant Program applicants in the selected institutions. A total of 753 applicants was interviewed.

Survey Approach

Trained interviewers conducted a structured telephone interview using a standardized survey form. This technique was selected to obtain the applicant perspective on education and living expenses, employment patterns and financing patterns.

Limitations

The survey had two primary limitations. First, the population did not represent the total population of students in

Minnesota. The State Scholarship and Grant Program applicant pool, in 1985, included only full-time undergraduates who were Minnesota residents attending Minnesota post-secondary institutions. Second, the survey reflected all the typical limitations associated with survey research that requires the respondent to recall information such as expenditures.

Several precautions were taken to minimize recall and estimation error. Applicants were asked to report job data and expenses in many small categories rather than in large categories. Applicants were asked to report job characteristics and expenses in each category for a time period deemed most appropriate for that category. Applicants also were allowed to choose alternative time periods. If an applicant wished to refer to records such as pay stubs and check registers, the option of a second call was offered. While these efforts may have minimized recall and estimation errors, such errors cannot be completely eliminated.

METHOD OF ANALYSIS

Differences among students based on several dependent variables were examined using multiple regression analysis and z-tests. Employment status, characteristics of students' jobs, the use of earnings to finance the cost of attendance, and measures of conflicts between jobs and other activities, the dependent variables, were analyzed separately. Independent variables included institutional type, institutional location, type of residence, household size, age, marital status, weekly take home pay, enrollment level, dependency status, expected parental or student contribution.

Statistically significant differences in dependent variables based on institutional type and location were determined using a z-test of the regression coefficients. Statistically significant differences on the basis of the other independent variables were determined using multiple regression analysis. Differences were considered to be statistically significant if the probability of their occurrences was less than 10 percent. Although differences in median values may have been observed between groups, these were not reported as differences unless the statistical test indicated they were significant.

IV. EMPIRICAL RESULTS: EMPLOYMENT PATTERNS

The Coordinating Board asked questions about the term-time employment status of State Scholarship and Grant Program applicants. Respondents were divided into three groups: (1) those who had a term-time job at the time of the interview, (2) those who were unemployed but wanted a job and (3) those who were unemployed and did not want a term-time job. Several questions were asked of the unemployed who wanted a term-time job to determine the seriousness of their job search. The results of these two parts of the study are presented in this section.

EMPLOYMENT AND UNEMPLOYMENT PATTERNS

Most respondents were employed at the time of the study. Of the five groups surveyed, the percentage employed varied from 54 to 81 percent, as shown in Table 1. Based on the average employment rates of students in the sample, 63 percent were estimated to have a term-time job at the time of the study. Most had one job while some had two or three jobs.

Of the respondents unemployed at the time of the study, about half wanted a term-time job while the other half were not interested in employment. The percentage of respondents who were unemployed and seeking a term-time job ranged from 9 to 31 percent across the five groups, as shown in Table 2. Based on these results, 19 percent of all respondents were unemployed and

Table 1. Percentage of Respondents Employed at the End of Spring Term 1985 by Group

Group	Percent Employed
Twin Cities Four-Year	81%
Twin Cities Two-Year	70
Other Four-Year	57
Other Two-Year	54
University of Minnesota-Twin Cities	70
Average of All Groups*	63%

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

* Weighted by the number of State Scholarship and Grant Program applicants in each group.

Table 2. **Percentage of Respondents Who Were Unemployed and Wanted a Term-Time Job at the End of Spring Term 1985 by Group**

Group	Percent Who Wanted a Job
Twin Cities Four-Year	9%
Twin Cities Two-Year	11
Other Four-Year	21
Other Two-Year	31
University of Minnesota-Twin Cities	11
Average of All Groups*	19%

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

* Weighted by the number of State Scholarship and Grant Program applicants in each group.

seeking a term-time job at the end of spring term. Altogether, 82 percent were either working or seeking term-time employment.

Many of the respondents were unemployed and did not want a term-time job at the end of spring term 1985. The percentage varied from 10 to 22 percent across the five groups as shown in Table 3. In all, about 18 percent of the respondents were unemployed and not interested in a term-time job at the time of the study.

Most of the respondents likely worked sometime during the year. Many sought employment only during the summer and other breaks. Others may have focused on studies or other activities at the time of the survey. Thus, these results only indicated the number who did not want a term-time job at the time of the interview.

DIFFERENCES IN THE EMPLOYMENT RATES BY LOCATION AND TYPE OF INSTITUTION ATTENDED

Employment rates of respondents varied by location of the institution attended. The percentage of respondents attending institutions in the Twin Cities area who were employed was significantly higher than the percentage attending institutions located outside the Twin Cities area who were employed. While 51 percent of the respondents attended an institution outside the Twin Cities area, 76 percent of those unemployed and wanting a term-time job attended institutions located outside the Twin Cities area.

Table 3. Percentage of Respondents Unemployed and Did Not Want a Term-Time Job at the End of Spring Term 1985 by Group

Group	Percent Who Did Not Want a Job
Twin Cities Four-Year	10%
Twin Cities Two-Year	19
Other Four-Year	22
Other Two-Year	15
University of Minnesota-Twin Cities	19
Average of All Groups*	18%

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

* Weighted by the number of State Scholarship and Grant Program applicants in each group.

Differences in types of students did not explain employment rate differences by location of institution attended. After considering differences in gender, age, marital status, dependency status, and grade level, the same conclusion was supported statistically: the percentage employed was higher for respondents attending institutions within as compared to those attending institutions outside the Twin Cities area.

Employment rates did not vary by type of institution. Differences between the percentage of respondents who were employed and attended four-year institutions and the percentage who were employed and attended two-year institutions were not significant. Further, there were no statistically significant differences between the percentage of respondents who were employed and attended the University of Minnesota-Twin Cities and the percentage who were employed and attended other institutions in Minnesota.

Employment patterns differed among types of respondents. Married respondents were less likely to be employed than non-married students. Older students were less likely to be employed than younger students. As the number of years of education increased, respondents were more likely to be employed. The availability of parental resources for dependent students, student resources for independent students, Pell grants, and state scholarships and grants, however, did not explain differences in the employment status of the respondents in the study.

JOB SEARCH EFFORT

From the study, three measures of job search effort were constructed for those who were unemployed but wanted a job. First, across the five groups, between 36 and 65 percent of these respondents sought job service assistance from the institution they attended. As shown in Table 4, in three of the five groups, over half who wanted a term-time job sought assistance.

Second, across the five groups, between 41 and 57 percent of these respondents applied for a work-study job during the term. This measure underestimated their job-seeking effort since students might have been discouraged from applying because of knowledge about their chances or about the availability of funds.

Third, across the five groups, between 38 and 64 percent of these respondents had at least one interview during the term. Since a student usually can get an interview only if an employer has an appropriate job opening, this measure was a conservative indication of job search efforts.

It would be expected that many students had become discouraged. The study focused on the job search efforts during the spring term. Thus, those who had searched in the fall term would not show up in the results as having looked for a job.

OTHER RESEARCH

These findings were consistent with those reported in other studies. In a 1981 study of University of Minnesota-Twin Cities

Table 4. Job Seeking Activities of Unemployed Respondents Unemployed and Who Would Like a Term-Time Job by Group

Group	Registered With Institution's Job Service	Applied for a Work-Study Job	Had One or More Interview
Twin Cities Four-Year	36%	57%	64%
Twin Cities Two-Year	65	41	59
Other Four-Year	38	41	38
Other Two-Year	57	49	49
University of Minnesota -Twin Cities	63	44	44

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

undergraduates, Hendricks reported that 75 percent were employed during the 1980-81 academic year. This was the same rate observed by the Coordinating Board's study for respondents attending the University of Minnesota-Twin Cities spring quarter 1985 as shown in Table 5. Hendricks reported that 69 percent were employed during both the academic year and summer. In addition, six percent were employed only during the academic year and 17 percent only during the summer. Only 8 percent were not employed at all during the year.

Frederick reported that 89 percent of the younger students (less than 25 years of age) and 62 percent of the older students had a job while attending a University of Wisconsin Center. The range reported by Frederick also was consistent with the rates reported in Table 5. Further, the lower labor force participation rates for older students corroborated the findings of the Coordinating Board study.

Davila reported that 70 percent of the students at 10 urban colleges and universities studied were employed. She found that 64 percent of the employed students were enrolled full-time. "Employment patterns varied across institutions. For instance, less than half of the Loop Community College (Chicago) students reported employment, while 82 percent of students at Suffolk, a private university, had jobs (Davila, p. 5)."

Mow conducted a study of 1,012 Hunter College students as an adjunct to the study reported by Davila. Mow found that 18 percent of the students worked full-time; 56 percent of the evening students and 10 percent of the day students. An addi-

Table 5. **Percentage of Respondents Employed Sometime During Spring Term 1985 by Group**

Group	Percent Employed
Twin Cities Four-Year	87%
Twin Cities Two-Year	76
Other Four-Year	62
Other Two-Year	63
University of Minnesota-Twin Cities	75
Average of All Groups*	69%

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

* Weighted by the number of State Scholarship and Grant Program applicants in each group.

tional 41 percent worked part-time. There is an increase in the number of day students who are employed full-time as they earn more credits. On average, 8 percent of the freshmen were employed full-time while 17 percent of the seniors were so employed.

Augustin and Mishler studied degree-seeking undergraduates over age 25 who were attending one of 17 campuses of the University of Wisconsin in 1985. A majority (61%) were employed, with 27% working full-time.

Frieden and Leimer found in an examination of Social Security records that the average age of entry into Social Security covered employment of high school and college graduates was virtually identical. This suggests that post-secondary students do not delay entry into the work force in order to pursue a post-secondary education.

CONCLUSION

Most students had term-time jobs. The proportion of students with term-time jobs varied from setting to setting. The results of the Coordinating Board study were within the range of previous studies. Employment rates varied by location of institution attended but not by the type of institution attended.

The Coordinating Board study found a significant number of students who were unemployed and wanted a term-time job. Most of these students had taken explicit actions to find a job. Location of institution had an effect on the proportion of the respondents who were unemployed and wanted a job.

V. EMPIRICAL RESULTS: CHARACTERISTICS OF STUDENTS' JOBS

The Coordinating Board study requested information about each term-time job the student had at the time of the interview. Most employed students had one job but some had two or three jobs. This section considers only those who reported having at least one job at the time of the interview.

HOURS WORKED

Of those employed at the time of the interview, the median number of hours worked varied between 13 and 20 hours per week as shown in Table 6. The difference between students attending two- and four-year institutions was statistically significant; students attending two-year institutions worked more hours per week. Further, these results held even after taking account of variations in enrollment level, dependency status, gender and age. The weekly hours worked did not vary significantly by location of institution attended or between employed students attending the University of Minnesota-Twin Cities relative to the rest of the sample.

Employed married students worked about 4 hours more per week than employed single students. Employed men worked about 2.7 hours more per week than women with similar characteristics. With an additional year of age, the average employed student worked about 0.14 more hours per week. As students progress,

Table 6. Median Hours Worked Per Week by Population Group

Population Group	Median Hours
Twin City Four-Year	16
Twin City Two-Year	20
Other Four-Year	13
Other Two-Year	18
University of Minnesota-Twin Cities	18

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

the results tentatively suggested that they work more. Information about expected parental contribution, expected student contribution, Pell award, and state scholarship or grant did not add to the statistical explanation of the number of hours worked.

Students with two or more jobs worked about 7 hours more per week than similar students with one job. Between 15 and 27 percent of the employed students had two or three jobs depending on the group as shown in Table 7.

CONFLICTS BETWEEN JOBS AND OTHER ACTIVITIES

Very few students had a conflict between job schedule and class schedule as shown in Table 8. There were no significant differences among students reporting frequent conflicts between jobs and class attendance by location or type of institution. As grade level increased, the results suggested that fewer job and class attendance conflicts occurred.

More students reported conflicts between jobs and study time as shown in Table 9. Again, there were no significant differences among students reporting frequent conflicts by location or type of institution. Students who worked more hours were slightly more likely to report frequent conflicts. Men were more likely than women to report frequent conflicts.

A similar pattern was noted in the conflict between extracurricular activities and jobs (Table 10). Again, there were no

Table 7. Percentage of Employed Students With Two or Three Jobs by Population Group

Population Group	Percent
Twin City Four-Year	27%
Twin City Two-Year	17
Other Four-Year	15
Other Two-Year	17
University of Minnesota-Twin Cities	16

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

Table 8. Percent of Employed Students Who Missed Classes Frequently Because of Job by Hours Worked and Population Group

	Weekly Hours Worked			
Population Group	0-10	11-20	21-30	31-40
Twin City Four-Year	3%	7%	0%	10%
Twin City Two-Year	0	7	0	5
Other Four-Year	3	0	0	0
Other Two-Year	0	0	0	0
University of Minnesota-Twin Cities	0	2	0	27

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

Table 9. **Percent of Employed Students Who Frequently Studied Less Than Needed Because of Job by Hours Worked and Population Group**

Population Group	Weekly Hours Worked 0-10	11-20	21-30	31-40
Twin City Four-Year	3%	20%	26%	50%
Twin City Two-Year	17	29	27	32
Other Four-Year	15	19	36	33
Other Two-Year	11	7	31	29
University of Minnesota-Twin Cities	15	24	35	45

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

Table 10. **Percent of Employed Students Who Frequently Gave Up Extracurricular Activities Because of Job by Hours Worked and Population Group**

Population Group	Weekly Hours Worked 0-10	11-20	21-30	31-40
Twin City Four-Year	5%	35%	39%	40%
Twin City Two-Year	25	36	33	41
Other Four-Year	18	48	71	33
Other Two-Year	0	32	54	43
University of Minnesota-Twin Cities	15	30	39	18

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

significant differences among students reporting frequent conflicts by location or type of institution. Students who worked more hours were slightly more likely to report frequent conflicts. Older students, independent students, and students with two or more jobs had a greater probability of having a frequent conflict.

Students also were more likely to report a frequent conflict between jobs and family activities than between jobs and classes (Table 11). Students attending two-year institutions were statistically more likely than those attending four-year institutions to report frequent conflicts between jobs and family activities. As years of education increased, the probability of reporting a conflict decreased. This helped explain the difference between students attending two-year and four-year institutions. There were juniors or seniors in the two-year institutions. In addition, students who worked more hours reported more conflicts as did older students. There were no statistically significant differences in the frequency of such conflicts on the basis of institutional location.

WAGE RATES

The median wage rate of the job designated by the student as his or her primary job varied across the five groups from $3.55 to $5.25 per hour as shown in Table 12. Wage rates of the primary job were significantly higher at the University of

Table 11. **Percent of Employed Students Who Frequently Gave Up Family Activities Because of Job by Hours Worked and Population Group**

Population Group	Weekly Hours Worked 0-10	11-20	21-30	31-40
Twin City Four-Year	3%	22%	13%	40%
Twin City Two-Year	8	19	19	36
Other Four-Year	9	26	36	17
Other Two-Year	16	32	15	29
University of Minnesota-Twin Cities	15	18	26	27

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

Table 12. Median Wage Rate, Primary Job*

Population Group	Wage Rate
Twin City Four-Year	$4.45
Twin City Two-Year	4.50
Other Four-Year	3.55
Other Two-Year	3.60
University of Minnesota-Twin Cities	5.25

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

* As designated by the respondent.

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Minnesota-Twin Cities than at the other institutions. Similarly, wage rates of primary jobs were significantly higher among students attending Twin Cities institutions. Students attending two-year institutions were not paid significantly different wage rates than students attending four-year institutions.

The difference observed in wage rates between respondents attending the University of Minnesota-Twin Cities and other institutions was statistically explained by characteristics of the students (age, gender), whether the student had two or more jobs, and whether the job was off campus or not. The difference in wage rates between respondents attending institutions within and outside the Twin Cities area was not explained by these other variables; wage rates were lower outside the Twin Cities area.

Men earned about $0.72 more per hour than women with similar characteristics. Each year of age resulted in about $0.14 per hour of additional earnings. For students with two or more jobs, the wage rate of the primary jobs was $0.62 more per hour than the wage rates earned by students with only one job. Off campus jobs paid about $0.50 more per hour.

LOCATION OF JOB

The primary job was most often located off campus, beyond walking distance but within 25 miles of campus as shown in Table 13. The one exception was the group of students attending four-year institutions outside the Twin Cities area; they were most

Table 13. Location of Primary Job by Population Group

Population Group	Employed by Institution or On-Campus	Within Walking Distance	Within 25 Miles	Over 25 Miles
Twin City Four-Year	40%	7%	49%	5%
Twin City Two-Year	7	4	72	17
Other Four-Year	49	5	30	16
Other Two-Year	22	7	57	14
University of Minnesota -Twin Cities	21	4	68	8

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

likely employed by the institution attended or on campus. Few jobs are off campus but within walking distance for any group.

The secondary job was more often on campus or with the institution for students attending institutions in the Twin Cities area as shown in Table 14. For students attending institutions outside the Twin Cities area, the secondary job was more often beyond walking distance. In all groups, more of the secondary jobs were within walking distance than was observed for the primary jobs.

WORK-STUDY JOBS

The jobs held by respondents were divided into two groups: work-study jobs and other jobs. The division was based on information provided by the student. Financial aid administrators indicated that students viewed any campus job as a work-study job. This did not appear to have been generally the case since the number of work-study jobs reported was less than the number of campus jobs reported. Further, the proportion of students reporting work-study jobs was consistent with the data on average earnings of participants in the Minnesota Work-Study Program and expenditure levels for all work-study programs. It was likely, however, that some of the respondents who reported having work-study jobs might not have been employed in a job subsidized by government or the institution.

Within the five groups, on average, between 6 and 34 percent of the jobs held by respondents were considered work-study jobs as shown in Table 15. The probability of an employed re-

Table 14. Location of Secondary Job by Population Group

Population Group	Employed by Institution or On-Campus	Within Walking Distance	Within 25 Miles	Over 25 Miles
Twin City Four-Year	46%	9%	37%	9%
Twin City Two-Year	16	5	79	-
Other Four-Year	21	7	36	36
Other Two-Year	19	13	50	19
University of Minnesota-Twin Cities	39	17	33	11

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

Table 15. Percentage of Jobs Reported as Work-Study Jobs by Group

Group	All Jobs*	Job 1	Job 2
Twin Cities Four-Year	34%	27%	64%
Twin Cities Two-Year	10	10	10
Other Four-Year	29	29	14
Other Two-Year	20	24	6
University of Minnesota -Twin Cities	6	7	6

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

*Includes Job 3.

spondent having a work-study job differed statistically by type of institution attended. Employed respondents attending the University of Minnesota-Twin Cities were less likely to have work-study jobs than employed respondents attending other institutions. There was no statistical difference between employed respondents attending four- and two-year institutions.

The probability of employed respondents having a work-study job was not statistically related to the location of the institution attended. Employed respondents attending two- and four-year institutions in the Twin Cities area were as likely to have work-study jobs as respondents attending institutions outside the Twin Cities area.

The probability of having a work-study job was statistically related to characteristics of the respondents. Sophomores, juniors and seniors were more likely to have work-study jobs than were freshmen. Independent and older applicants were less likely to have work-study jobs.

Except for respondents attending the University of Minnesota-Twin Cities, work-study jobs paid less per hour than other jobs as shown in Table 16. Across the five groups, median wage rates of work-study jobs varied from $3.35, the minimum wage, to $6.22 per hour. Median wage rates of other jobs varied from $3.90 to $5.00 per hour. Among those attending institutions located outside the Twin Cities area, median wage rates for work-study jobs were 55 and 58 cents per hour lower than the median wage rates for other jobs. For those attending institutions located in the Twin Cities area, median work-study wage

Table 16. Median Wage Rate of Work-Study Jobs and Other Jobs by Group

Group	Work-Study	Other
Twin Cities Four-Year	$4.25	$4.60
Twin Cities Two-Year	4.00	4.75
Other Four-Year	3.35	3.93
Other Two-Year	3.35	3.90
University of Minnesota -Twin Cities	6.22	5.00

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

Note: Based on student's primary job.

rates were 35 and 75 cents per hour lower than median wage rates for other jobs.

Respondents who reported their primary job as a work-study job worked fewer hours per week than those whose primary job was not a work-study job. The difference varied from 5 to 11 hours per week, as shown in Table 17.

OTHER RESEARCH

Christoffel reported that "undergraduate financial aid recipients meet only 6 percent of their college expenses from organized work-study programs (p. 5)." She notes that the amount students earn outside of work-study jobs is unknown. But students "may actually earn more" because the control on hours does not exist and because wage rates are often higher off campus (p. 25).

CONCLUSIONS

The Coordinating Board and Christoffel's conclusions corroborate each other: work-study jobs are not a major source of funding or necessarily the preferred jobs. This raises questions about the role of work-study programs in financing the cost of attendance.

It is unknown whether the convenience of on campus employment outweighs the lower wage rates for work-study jobs. A student might net more from an on campus job if the costs associated with an off campus job are large or the job is inconvenient

Table 17. Median Weekly Hours Worked on Work-Study Jobs and Other Jobs by Group*

Group	Work-Study (Hours)	Other (Hours)
Twin Cities Four-Year	10	16
Twin Cities Two-Year	10	16
Other Four-Year	10	18
Other Two-Year	9	20
University of Minnesota -Twin Cities	13	18

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

* Based on student's primary job.

to reach. Taxi fares, for example, would lower the net benefit of an off campus job.

It is unknown whether students who have work-study jobs prefer the shorter work weeks. Students need to balance their time commitments. This suggests that some students will seek jobs with limited time commitments.

Work-study programs expand the job opportunities for eligible students. The impact of these programs on the availability of jobs for all students is unknown. On one hand, work-study jobs could be replacing jobs that would have been available to students generally. On the other hand, work-study jobs could be additional jobs that enable employers to provide more and better services.

At minimum wage ($3.35) and an 80 percent subsidy, work-study employers are paying 67 cents per hour for work time. This suggests that these workers are engaged in activities not considered very valuable in the market place. Alternatively, this might suggest that the subsidies are going to the employer, rather than creating more jobs for students. Since post-secondary institutions are the major employers, work-study allocations, some argue, simply amount to another form of institutional financial support.

Federal and state laws assign certain responsibilities to the employer. Employers must provide appropriate wage and hours administration and worker compensation coverage, for example. Some financial aid administrators are reluctant to place a student in a private home because they fear that the post-secondary institution would be held liable if the employer failed to fulfill his or her legal responsibilities. This is probably a primary reason why the inclusion of persons over age 65 and handicapped persons as eligible employers in the Minnesota Work-Study Program has provided limited additional job opportunities for eligible students.

VI. EMPIRICAL RESULTS: USE OF EARNINGS TO FINANCE THE COST OF ATTENDANCE

The Coordinating Board asked questions about how students financed their reported cost of attendance. The results of these questions are presented in this section.

SURVEY RESULTS

Respondents financed a substantial portion of the reported cost of attendance themselves. Across the five groups, respondents used earnings to finance, on average, between 37 and 50 percent of their reported cost of attendance as shown in Table 18. The reported cost of attendance exceeded the standard allowance used in the State Scholarship and Grant Program in 84 percent of the cases. For more information on the reported cost of attendance, see Schoenecker and Setter.

In addition to earnings, students used loans, on average, to finance between 11 and 20 percent of their reported cost of attendance; scholarships and grants between 11 and 20 percent; parents between 10 and 18 percent; savings, 4 to 7 percent; and spouse and child contributions, 1 to 7 percent.

On average, respondents financed about two-thirds of their expenses from earnings, savings, and loans. Respondents attending four-year institutions financed slightly over 60 percent of their reported cost of attendance with a combination of these income sources. Respondents attending two-year institutions

Table 18. **Source of Funds Used by Scholarship and Grant Program Applicants to Finance The Reported Cost of Attendance by Population Group**

Source	Twin Cities Four-Year	Twin Cities Two-Year	Other Four-Year	Other Two-Year	University of Minnesota - Twin Cities
Earnings	40%	50%	38%	37%	50%
Savings	4	6	7	5	5
Loans	16	11	15	20	13
Scholarship and Grant	20	11	18	16	14
Parents	18	10	18	11	11
Spouse and Children Earnings	1	7	2	5	3
Employer Reimbursement	0	0	0	0	0
Other	1	5	1	6	4

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

financed 67 and 74 percent, on average, from earnings, savings, and loans. Respondents attending the University of Minnesota-Twin Cities financed 71 percent from these sources.

Although respondents attending the University of Minnesota-Twin Cities appeared to finance a higher percentage of their reported cost of attendance with earnings, these differences were explained statistically by student characteristics and employment patterns. It appeared to be the availability of jobs that explained differences in the average percentage of the reported cost of attendance financed by earnings.

Differences in the percentage of the reported cost of attendance financed by earnings were related to the type of institution attended but were not related to the location of institution attended. Respondents attending two-year institutions financed a greater percentage with earnings. Respondents attending Twin Cities institutions did not finance a greater percentage of their reported cost of attendance with work than did respondents attending other institutions.

Student characteristics and employment patterns explained some of the differences in the percentage of the reported cost of attendance financed by earnings. Juniors and seniors financed 6 and 10 percent more of their reported cost of attendance with current earnings than did freshmen. Differences in employment status and hours worked also explained some of the differences in the use of earnings as a source of financing.

Employed respondents financed 50 percent of their reported cost of attendance with earnings as shown in Table 19. Current-

Table 19. Percentage of Reported Cost of Attendance Financed from Various Sources by Employment Status

		Unemployed	
Source	Employed	Want Job	Did Not Want Job
Student Earnings	50%	30%	24%
Spouse and Children Earnings	2	4	6
Loans and Savings	18	28	27
	70%	62%	57%

Source: Minnesota Higher Education Coordinating Board Student Expenditure, Finance and Employment Survey, May-June 1985.

ly unemployed respondents financed less. Those who wanted a term-time job financed 30 percent and those who did not, 24 percent. Respondents employed 10 hours per week financed about 19 percent more with earnings than unemployed respondents who did not want term-time jobs. Similarly, respondents employed 20 hours per week financed about 26 percent more than unemployed respondents who did not want a term-time job. At 10 hours per week, employed respondents financed 15 percent more of the reported cost of attendance with earnings than unemployed respondents who wanted a term-time job. At 20 hours per week, the difference was 22 percent.

Although unemployed respondents financed a smaller percentage of costs with current earnings, they relied more on earnings than on any other source. These respondents carried forward earnings from the previous summer, breaks, and jobs during prior periods of attendance.

Unemployed respondents relied more heavily on loans and savings than did employed respondents. Unemployed respondents financed 27 or 28 percent of their reported cost of attendance with loans and savings while the employed respondents financed 18 percent. The difference between employed and unemployed respondents in the percentage of reported cost of attendance financed by earnings was 20 and 26 percent. A smaller difference, 8 and 13 percent, was observed based on the student's past, current and future income. The contributions of spouses and children were included as part of student income for this comparison.

OTHER RESEARCH

Doran and others looked at the question of financing the cost of attendance differently. They considered the cost of attendance net of the financial aid provided. They considered the money generated by a job funded by a work-study program differently than the money generated by a similar job not subsidized by government or an institution.

Doran and others found that nearly half of the dependent students in their sample met some of the cost of attendance with income from non-work-study jobs (p. 485). Students used their own income to finance 20 percent of the cost of attendance net of financial aid (p. 486). Students whose families had lower income financed more of this part of the cost of attendance personally with current income (p. 487).

Doran and others found that independent students financed 54 percent of the cost of attendance with earnings from non-work-study jobs (p. 486). The students' spouses represented a significant source of support for self-supporting students with 28% of such families listing spouse support as a source (p. 485).

Augustin and Mishler conducted a study of how adult (25 years of age or older) students financed tuition and related expenses (books, supplies, child care and transportation). They found that off campus employment was the most important source of financial resources for 29 percent of the respondents. Student loans were listed as the most important source by 17 percent of the respondents. Only one in ten obtained contributions from parents or relatives. Employer-sponsored tuition plans were a source for 8 percent of the respondents.

CONCLUSIONS

Current income is the most important source of financing for students. In some cases, on average, current income was used to finance half of the reported cost of attendance. Current income is a function of work opportunities. Thus, the conclusion about the role of earnings is related directly to variations in employment rates described above.

Financial aid research typically addresses the level of the cost of attendance and earnings. Little information is available that combines these two. This makes the results reported in this section relatively unique. Further studies are needed to corroborate the results of the Coordinating Board study.

VII. CONCLUSIONS AND IMPLICATIONS

CONCLUSIONS

The main conclusions of this paper are:

- Most students had term-time jobs. The Coordinating Board study found that 63 percent of the State Scholarship and Grant Program applicants had jobs at the time of the interview.
- Employment rates identified in the Coordinating Board study varied by location of institution attended but not by the type of institution attended.
- About one-fifth of the students surveyed in the Coordinating Board study were unemployed and wanted term-time jobs.
- Work-study jobs were not a major source of funding or necessarily the preferred jobs.
- Whether the convenience of on campus employment outweighed the lower wage rates for work-study jobs needs further study.
- Whether students who have work-study jobs preferred the shorter work weeks needs further study.
- Current income was the most important source of financing for students.
- Unemployed students rely more on savings and loans than those with term-time jobs.

IMPLICATIONS

A major implication is that understanding work-study programs does not provide an understanding of students' employment activities. This holds even in a state with a large state Work-Study Program.

Post-secondary institutions face a trade-off. On campus jobs often are limited both in number and income producing capacity (wages and hours). An attempt to reallocate existing student work to accomplish other objectives might be counterproductive. If an institution were, for example, to view on campus jobs as part of its retention strategy, it would likely mean additional rationing of jobs. This would limit students' abilities to produce current income.

There is a wide variation in the employment rates reported in the literature. This could imply that the various studies did not use compatible methodologies. Alternatively, the wide variation in employment rates could imply that this parameter varies across different post-secondary educational settings. If the latter is true, the difference could be due to the structural characteristics of the institution or to the types of students choosing to attend the institution.

Most studies have looked at the employment patterns and job characteristics of full-time, resident students. The results based on studies of the traditional populations and the traditional financing and attendance strategies may not extend to all students. Consequently, as more students pursue their educations on a part-time basis, financial aid policy will need to be reviewed and probably revised.

How much can a student earn? The answer is: students have a large capacity to produce current income. The potential might already be exploited, however. Given the large number of respondents unemployed and wanting a job, further expansion will require an examination of the supply of jobs and the role of government and post-secondary institution in creating jobs.

The research indicates that there is a difference between those who have a job and those who do not with respect to the pattern of financing. This suggests that the lack of available jobs will influence students' spending and borrowing decisions.

The challenge is to find approaches that will produce jobs that the economy will support. Work-study jobs are not a major source of jobs. It is unclear how a substantial expansion of work-study programs would affect the total job market on and near campus.

Available research provides information about students and their jobs. Good financial aid policy requires more knowledge. Financial aid policy needs to extend beyond aid programs; it needs to embrace the totality of student financing. As the population of students has changed, some of the assumptions about student behavior and family support might be inappropriate. Concern about access, choice and equal opportunity requires a wider view of financial aid.

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NPASA: The National Data Base for Postsecondary Student Financial Aid Studies

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Abstract

NPSAS: The National Data Base for Postsecondary Student Financial Aid Studies

NPSAS, a triennial survey, will provide comprehensive student-based data for addressing issues in financing of postsecondary education. It will encompass all student aid programs, both Federal and non-Federal, all types of institutions, and aided and non-aided students. It will have data on the financial condition of a representative sample of GSL recipients, and the related capability for repayment of their loans. And, for the first time, definitive data on family contributions to financing postsecondary education will be available. The data base will be available for use in spring of 1988.

NPSAS: The National Data Base for Postsecondary Student Financial Aid Studies

Background

Student financial aid is an important concern to policymakers and the general public because it plays an important role in postsecondary education. In addition to Federal aid programs which have grown substantially over the years, each State has its scholarship/grant program and institutions and private organizations provide financial aid to qualified students. Some employers, as part of their employee benefits, provide employees with financial aid to attend a postsecondary institution.

As the magnitude and importance of financial aid has increased, policymakers have raised some fundamental questions about the whole area of student aid. Some of these relate to the status and condition of student participation. Others relate to the nature of aid packages, the impact of financial aid programs on student enrollment and progression, and the impact of changes in financial aid program policies on students and on program costs.

The need for national data and information concerning important financial aid issues prompted the U.S. Department of Education to develop a comprehensive study of student financial aid which the Center for Education Statistics (CES) in the Office of Educational Research and Improvement was asked to design and implement. With assistance from other offices and the research community, CES launched the National Postsecondary Student Aid Study (NPSAS).

Design and Data Collection

To achieve the comprehensiveness necessary to address basic student financial aid issues, NPSAS has an in-school component which involves a nationally representative sample of students in postsecondary institutions, and an out-of-school component which involves a sample of GSL recipients who have left school and are in repayment process.

In-school Component. This component covers the entire spectrum of postsecondary institutions, including public and private nonprofit and profit making institutions, two- and four-year schools, and schools with only occupational programs of less than two years in duration, since students in all types and control of postsecondary institutions are potentially eligible for Federal financial assistance. Both aided and non-aided students are included so it will be possible to compare the costs of postsecondary education among those who have received aid and those who have not, and to assess differences in how students finance their postsecondary education. Any institutions which, in the Fall of 1986, offered programs in postsecondary education that were academically or vocationally oriented were eligible for selection. Additionally, to assess how financial aid packages and costs change as students progress through school, the study will sample students at all academic levels, including graduate students and first-professional students. Of the total 1145 eligible schools selected for the study, 1074 participated in the study (94%). The total yield number of students sampled from these institutions is about 60,000.

The in-school sample of students was selected from registration lists of enrollees in the fall, 1986, and data collected on items such as the students' performance, field of study, and status (part-time/full-time) from these records. For aided students, NPSAS collected information from financial aid office records on the type and amount of financial aid received and family financial characteristics. Additionally, from the Student Survey, NPSAS will obtain information on students' earnings, school costs, and sources of funds.

To get a better perspective on how families cope with postsecondary education costs and the financial characteristics of families with students in postsecondary education, NPSAS will draw a subsample of students in the student sample and survey their parents. Parents will be asked to provide information on parental contributions to their child's postsecondary education, family financial condition, educational savings, and loans taken to pay for postsecondary education. Family financial condition questions in the Parent Survey will focus on parents of dependent students who do not have a financial aid record, since a primary objective of this component is to compare the family financial condition of aided and non-aided students. Therefore, student status will be taken into account in drawing the parent sample and fewer parents of older, independent students, and fewer parents of aided, dependent students will be surveyed. A total of 32,000 parents were selected for the study.

Out-of-School Component. In order to look at total education debt, its size, and impact, and to better determine the Federal costs arising from student loans, NPSAS has an out-of-school component as well. Using the Guaranteed Student Loan (GSL) program file of all individuals who received a GSL since 1965, the study will include a sample of about 14,000 individuals who are no longer in school, but who received a GSL while attending a postsecondary institution.

The out-of school GSL recipients will be asked about their total education debt, total debt burden, current financial condition, and other demographic information. In addition to being able to describe the GSL recipients and their economic and occupational outcomes, the study will relate recipient characteristics and behavior to loan repayment status. Classifying GSL recipients on the basis of the repayment status of their loans will permit a focus on recipients who are in default. For the first time, national data will be available on the characteristics of those recipients who have defaulted on their guaranteed student loans.

Data Typologies. The types of data to be collected by the NPSAS are summarized in Table 1.

Table 1. NPSAS Data Typologies

IN-SCHOOL COMPONENT

Who Attends

Institutional Characteristics
- Type
- Control

Student Characteristics
- Demographic
- Financial condition
- Enrollment
- Academic
- Employment status

Family Characteristics
- Demographic
- Financial condition
- Employment status

Cost of Attending

Expenses paid to institution
- Tuition & fees
- Books & supplies
- Room & board

Expenses not paid to institution
- Rent
- Food
- Transportation
- Miscellaneous

Financing Costs

Financial Aid
- Source
- Type
- Amount

Student/spouse self-help
- Contributions
- Earnings

Parent/family contributions
- Loans
- Gifts
- In-kind contributions

OUT-OF-SCHOOL COMPONENT

Who Received

Institutional Characteristics
- Type
- Control

Personal Characteristics
- Demographic
- Financial condition
- Education history
- Education completion status
- Employment history

Loan Characteristics

Status
- Paid-in-full
- In repayment
- In deferment
- In default

Amount
- Borrowed
- Still Owed

Analytic Potential

NPSAS was designed to address a variety of issues relating to student financial aid. Examples of policy areas and their related analysis topics, together with NPSAS data elements that would be used are presented in Table 2. These examples are by no means exhaustive. Many other analyses are possible, depending upon the interests and needs of the researcher/analyst. Moreover, NPSAS was assigned to be combinable with other revelant data files. This will increase its analytic potential greatly.

Table 2. Policy Issues That Can Be Addressed With NPSAS Data

Policy Areas	Analysis Topics	NPSAS Data Elements
Postsecondary education enrollment	Characteristics of students enrolled in postsecondary education	Students attending postsecondary institutions by student, family, and institutional characteristics--in-school sample.
Financing of postsecondary education	The cost and financing of an undergraduate education	Undergraduate education expenses (e.g., tuition and fees, books and supplies, room and board, and miscellaneous expenses) and sources of support to meet these expenses (e.g., student, family, grants, loans) by student, family, and institutional characteristics-- in-school sample.
	The cost and financing of a postbaccalaureate education	Graduate and professional student education expenses (e.g., tuition and fees, books and supplies, room and board, and miscellaneous expenses) and sources of support to meet these expenses (e.g., student, family, fellowships, assistantships, loans) by student, family, and institutional characteristics-- in-school sample.
Distribution of student financial aid	Aided and nonaided undergraduate students	Undergraduate aided and nonaided students by student, family, and institutional characteristics--in-school sample.
	Aided and nonaided postbaccalaureate students	Postbaccalaureate aided and nonaided students by student, family, and institutional characteristics--in-school sample.
	Student aid packaging	The interaction among type, source, and amount of aid by student, family and institutional characteristics--in-school sample.
	Federal aid recipients	The interaction among the specific source, type, and amount of Federal aid by student, family and institutional characteristics--in-school sample.

Policy Issues That Can Be Addressed With NPSAS Data (Continued)

Policy Areas	Analysis Topics	NPSAS Data Elements
Distribution of student financial aid (continued)	Student financial aid applicants vs. recipients	A comparison of aid applicants who did not receive financial aid with those who did receive financial aid by student, family, and institutional characteristics--in-school sample.
	Proprietary institutions and their students	The distribution of students attending a proprietary institution and the way they finance their education by student, family, and institutional characteristics--in-school sample.
	Non-traditional students in postsecondary education	Older students, part-time students, and full-time employed students in postsecondary institutions and the way they finance their education by student, family, and institutional characteristics--in-school sample.
	Changes in aid awards over the academic year	A comparison of type and amount of student financial aid awards for the fall and full-year by student, family, and institutional characteristics--in-school sample.
Impact of financial aid	Student choices for a postsecondary education	The impact of the amount of financial aid on students' degree aspirations, choice of a postsecondary institution (first, second, and third) and field of study by student, family, and institutional characteristics--in-school sample.
	Student persistence in postsecondary education	Students who do and do not stop out between the fall and spring terms of the 1986-87 academic year with the amount and type of aid awarded by student, family, and institutional characteristics--in-school sample.
	The impact of financial aid on postsecondary institutions	The distribution of students and the type and amount of financial aid they receive together with institutional finance data by student, family, and institutional characteristics--in-school sample and IPEDS financial data.

Policy Issues That Can Be Addressed With NPSAS Data (Continued)

Policy Areas	Analysis Topics	NPSAS Data Elements
Title IV program simulations and modeling	Title IV program specific simulations	The impact of program specific parameter changes on the amount and distribution of program specific funds--in-school sample.
	Title IV interactive cost simulations	The impact of changes in one Title IV program on the costs and student participation in other Title IV programs--in-school sample.
	Modeling GSL program costs	Information on education completion status, repayment periods, default rates, deferment periods in relation to the size and number of GSL loans by personal and institutional characteristics--out-of-school sample.
	HEA, 1986: dependency status definition	Base line data for a comparison of the distribution of Title IV aid before the change in the definition of dependency status by student, family, and institutional characteristics--in-school sample. Subsequent NPSAS data collection efforts will provide information on the distribution of Title IV aid after the change in the definition of dependency status.
	HEA, 1986: GSL application procedures	Base line data for a comparison of the distribution of GSL recipients before the requirement for GSL recipients to submit to a Pell needs analysis by student, family, and institutional characteristics--in-school sample. Subsequent NPSAS data collection efforts will provide information on GSL recipients under the new application procedures.

Policy Issues That Can Be Addressed With NPSAS Data (Continued)

Policy Areas	Analysis Topics	NPSAS Data Elements
Parental/family contributions	Actual vs. expected parental contributions	Parental contributions as reported by parents and expected parental contributions as determined by needs analysis for students receiving need-based aid by student, parent, and institutional characteristics--in-school sample.
	Parental/family contributions	A comparison of students who do and do not receive parental/family contributions/loans by student, family, and institutional characteristics--in-school sample.
	Sources of parental support	Methods by which parents obtain funds to support their child's postsecondary education by student, parent, and institutional characteristics--in-school sample.
Student self-help	Student and spouse contributions to financing postsecondary education	The distribution of student and spouse's contributions by student, family, and institutional characteristics--in-school sample.
	The relationship between financial aid and student earnings	The amount and types of student aid received, and the student/spouse's earnings by student, family, and institutional characteristics--in-school sample.
	Actual vs. expected student contributions	Student reported contributions and expected student contributions as determined by needs analysis for students receiving need-based aid by student, family, and institutional characteristics--in-school sample.

Policy Issues That Can Be Addressed With NPSAS Data (Continued)

Policy Areas	Analysis Topics	NPSAS Data Elements
Loan burden/debt management	Student borrowing and education debt	The distribution and amount of total, education, and GSL loans by personal and institutional characteristics--out-of-school sample.
	GSL borrowing vs. the receipt of other financial aid	A comparison between the amount of GSL borrowed and the type and amount of other financial aid received by personal and institutional characteristics--in-school and out-of-school samples.
	An individual's capacity to repay a GSL and his/her repayment status	Factors associated with an individual's ability to repay (e.g., income, employment, and repayment amounts) and the current repayment status (e.g., default, deferment) by personal and institutional characteristics--out-of-school sample.
	GSL borrower characteristics	The amount of GSL loans borrowed, the education completion status of students, and the repayment status of their loans by personal and institutional characteristics of borrowers--in-school and out-of-school samples.
	Repayment practices of GSL recipients	Characteristics of repayment of a GSL (e.g., duration of repayment period, monthly payments, number of lenders, duration and type of deferment/default) by personal and institutional characteristics--out-of-school sample.

Policy Issues That Can Be Addressed With NPSAS Data (Continued)

Policy Areas	Analysis Topics	NPSAS Data Elements
Non-Federal support for postsecondary education	State support of students and postsecondary institutions	Type and amount of student financial aid received through State student financial aid programs and State allocations to public and private postsecondary institutions--in-school sample and IPEDS finance data.
	Employer supported student aid	Amount of aid provided by employers for individuals in different occupations and by type of employer by student, family, and institutional characteristics--in-school sample.
	Institutional support for students in postsecondary education	The type and amount of financial aid (e.g., merit and need-based grants, tuition waivers, loans) provided by postsecondary institutions to their students by student, family, and institutional characteristics--in-school sample.

Survey Schedule and Data Dissemination

Data collection for the survey took place primary from late winter, 1986 to fall of 1987. The first report - a descriptive study of 60,000 students - is planned for December, 1987. A preliminary data tape for this study is also planned for release when the report is published. A few additional analysis reports on the in-school-component data and the out-of-school student data will be subsequently completed by August 1988. The final complete data file will also be available by that time. Researchers are encouraged to make use of this comprehensive data base to address issues of concerns.

21 October 1987 **DRAFT** Art Hauptman/Pat Smith

SUMMARY OF REPORT ON STUDENT LOAN DEFAULTS

Some trends and statistics about student loan defaults:

- Annual federal payments for defaults and related claims in the Guaranteed Student Loan (GSL) program have been steadily increasing. As recently as fiscal 1982, they were less than $300 million. Federal default payments first exceeded $1 billion in fiscal 1985 and reached an estimated $1.6 billion in fiscal 1987. With projected increases in the amount of loans in repayment, annual default claims will likely exceed $2 billion by the end of the decade, even if the tendency of borrowers to default remains steady or declines slightly. With the growth in federal default payments, coupled with lower federal interest payments due to falling market rates, defaults now account for one-half or more of total federal costs for GSL. From another perspective, GSL defaults are now the third largest federal student aid expenditure behind Pell Grants and GSL interest payments.

- The default rate for GSL has been increasing in the past several years after several years of decline. The federal government reports that the GSL default rate through the end of fiscal year 1986 was 13 percent, up from 12 percent at the end of fiscal year 1985. When collections on previously defaulted loans are taken into account, the "net" default rate for GSL rose from 9.2 percent in 1985 to 9.7 percent in 1986.

- The default rate for the second largest federal loan program — Perkins loans, previously known as National Direct Student Loans (NDSL) — was 14.5 percent through the end of fiscal year 1984, the last year for which data are available. When loans that educational institutions turn over ("assign") to the federal government are taken out of the calculation, the "net" default rate for NDSL was 9 percent at the end of fiscal 1984. Both figures represent declines from previous years, reflecting both a decrease in the number of defaults and an increase in the amount of loans assigned to the federal government for collection.

- A recent study released by the Federal Funds Information for States (FFIS) has served to focus attention on the default rates of students by the educational institution they attended. (By and large, educational institutions do not lend in the GSL program; banks and other private lenders provide most of the capital.) Of the 8,300 educational institutions identified in the report, two-fifths had student borrowers with default rates in excess of 20 percent and more than one-tenth had default rates in excess of 40 percent. The schools with the highest default rates tended to be cosmetology schools, other vocational programs, and community colleges. But the report also demonstrates that the student loan default problem is not confined to certain types of institutions. The three-fifths of institutions with default rates of less than 20 percent accounted for half of all defaults. These results are not dissimilar to the experience of educational institutions acting as lenders in the Perkins loan program.

These trends and statistics ensure that the issue of student loan defaults will continue to be a great concern to policymakers and the public. This report examines the available data on student loan defaults and suggests some steps that should be taken to bring the student loan problem under control.

The Need for an Annual Default Rate Statistic

The first step should be to ask the government to present default rate statistics on an annual basis. For a variety of reasons, the federal government has traditionally calculated student loan default rates on a cumulative basis since the program began. A cumulative rate measures the probability that a loan will default sometime during the repayment cycle, but it fails to reflect accurately year-to-year changes in default activity. (A cumulative rate is similar to measuring a baseball player's batting average over the course of a career, rather than for just one season.) For this reason, a cumulative measure of student loan default rates should not be compared to the loss rates that banks publish for various types of consumer loans because bank loss rates are calculated on an annual basis — losses in one year are compared to loans in repayment in that year.

The Department of Education should develop and publish an annual default rate for GSL so that year-to-year changes in default activity might better be measured and to allow for comparisons with other types of consumer loans. Based on available program data, the annual default rate for GSL was 7.3 percent in 1986. If collections on previously defaulted loans are taken into account, the "net" annual default rate for GSL was 5.2 percent in 1986. Both the gross and net default rates in 1986 represent increases over estimates of the annual GSL default rate in 1985.

Why are Defaults and Default Rates Rising?

The principal cause of the recent surge in default payments has been the growing number of loans in repayment, a direct result of the rapid growth in loan volume that began in 1979. In fiscal 1978, the amount of loans in repayment was less than $3 billion; in fiscal 1986, loans in repayment approached $20 billion.

The increase in the GSL default rate is due primarily to the growth in new loans in repayment; a borrower just entering repayment is much more likely to default than a borrower who has already been making repayments for a period of time. Past experience in the GSL program suggests that over one-half of all defaults occur before the first repayment and roughly four-fifths of defaults occur in the first year of repayment. In fiscal 1978, about $1 billion of loans entered repayment; in fiscal 1986, nearly $8 billion of loans entered repayment.

The growth in loans entering repayment, however, does not entirely explain recent increases in federal GSL default payments and the growth in the default rate. Default payments and rates may also have increased because groups of borrowers who traditionally have been more likely to default have represented a larger proportion of borrowing since the GSL loan volume expanded after 1979. No nationwide data exist to confirm this impression, but state agency information suggests that this is a plausible explanation of the growth in student loan defaults and default rates.

Recent studies confirm the results of earlier analyses regarding which groups of students are more likely to default. Students from lower income families default with greater frequency than students from higher income families. Borrowers who do not finish their educational program are more likely to default than those who do complete their course of study. In general, it appears that students with academic deficiencies are more prone to default. Recent studies also continue to suggest that the probability of default decreases the longer that a borrower is in school and the more that is borrowed. A 1984 study of New York State borrowers and defaulters indicates that unemployment may be a more important factor in explaining defaults than was previously thought. These results suggest that the incidence of default is inversely correlated with a student's benefits from the educational process in terms of course completion and finding suitable employment afterwards.

What Can Be Done to Reduce the Incidence of Defaults?

Since student loan defaults were first perceived as a policy concern in the late 1970s, the federal government has taken a number of steps to reduce the incidence and impact of defaults. In the GSL program, these steps have included: enhanced use of government and private collection agents and incentives for guaranty agencies to increase their collection activity; the matching of computer records of defaulters and government employees; the impoundment of property, garnishment of wages, and legal actions in selected instances; requiring lenders to disburse loans in two installments; and the retention of income tax refunds to offset the federal costs of loan defaults. In the Perkins loan program, the major default initiative has been to restrict or prohibit lending by educational institutions with high default rates.

The 1986 amendments to the Higher Education Act included additional provisions for reducing the cost of defaults in the GSL program, including requirements for increased counselling by lenders and institutions regarding borrowers' cumulative debt, monthly repayments, and the consequences of default, a higher reinsurance fee charged to guarantee agencies with high default rates, an extended repayment period for students with high debt, and limiting student borrowing to the amount of unmet need. Data on the impact of these changes in reducing the cost and incidence of defaults, however, will not be available for several years.

Most of the steps that the federal government has taken over time have focused primarily on collections of previously defaulted loans. These efforts have substantially increased the amount of collections on defaulted loans. In fiscal 1986, federal collections on defaulted loans were $400 million, up from less than $100 million as recently as fiscal 1982.

Governmental efforts have been less successful in preventing defaults before they occur. The default rate for student loans still far exceeds that for other types of personal loans. Loss rates for mortgages are less than 1 percent mortgage delinquencies in excess of 60 days have climbed to almost 2 percent, and credit card loss rates typically run about 2 percent. These rates of loss could reasonably be compared to the roughly 5 percent "net" annual default rate for GSL.

It would be difficult to reduce student loan default rates to levels for other types of personal or consumer loans unless certain fundamental aspects of the programs were changed -- for example, requiring collateral of student borrowers or restricting eligibility for groups of students with higher than average default rates. Such a change, however, would run contrary to the principle of expanding access to higher education for groups of students who have traditionally been underrepresented in postsecondary education. Another basic change would be to restrict loan eligibility on the basis of the record of the educational institution in terms of completion rates and job placement. But education remains the province of the states, and the federal government presently has no mandate to assess the merits of the programs of educational institutions.

Short of changing the basic nature of the program, however, more can and should be done, especially in trying to prevent defaults before they occur. The key for default prevention is to create additional incentives for all participants to prevent defaults from occurring. A number of suggestions have been made for reducing the incidence of student loan defaults. Some of these suggestions are listed below.

Educational Institutions

- Educational institutions might be required to exhaust a student's grant eligibility before providing a loan. This might entail waiting several months into the first semester before allowing a loan to be made.

- The number of loans made to students attending institutions with high default rates might be limited. To be fair to institutions who enroll high concentrations of students who are likely to default, the threshold for restricting loans should be done on a sliding scale; institutions which can demonstrate that they have a high proportion of default-prone borrowers should have a higher cutoff level. The threshold level should be established on an annual basis; schools should not have to try to overcome the effects of large defaults that occurred many years ago.

Borrowers

- The 5 percent federal origination fee and the insurance premium currently collected by guaranty agencies in the GSL program might be combined into a default fee that would be used to establish a loan insurance fund. Currently, the federal origination fee is used to offset in-school interest and special allowance costs; state agencies are allowed to use the students' insurance premiums for operating expenses, reserves, defaults, or other expenses. Under this proposal, payments from the origination fee and insurance premiums would be used to offset part of the federal cost of defaults. All or a portion of the fee could be refunded to the borrower when a loan is fully repaid.

- Borrowing could be limited to students who have received a high school diploma or its equivalent.

- Borrowing might also be limited to students who have completed between six months and two years of their academic program, depending on the type of program in which they are enrolled.

Lenders

- Lenders with high default rates might be required to pay a fee into the loan insurance fund to offset the federal costs of defaults.

- Alternatively, lenders with high default rates might receive less than 100 percent of their default claims. As in the case of educational institutions, the threshold rate for lenders should be an annual one and be set on a sliding scale that varies with the composition of borrowers: the more default prone the borrowers, the higher the threshold rate.

Guaranty Agencies

- Guaranty agencies already have an incentive for default prevention; the rate at which the federal government reinsures their default claims is reduced below 100 percent when their default rates exceed certain threshold levels. If additional incentives for default prevention are desired, then the reinsurance rates or the threshold levels might be further lowered, or both steps might be taken.

- Alternatively, the administrative cost allowance that guaranty agencies currently receive (equalling one percent of new loan volume) could be reduced for guaranty agencies with high default rates. Currently, this allowance covers from 4% to 50% of the administrative funding of state guaranty agencies.

Examining the Loan Burden Problem

by

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This paper examines the demand for Guaranteed Student Loans (GSL's) over the last eight years.

Demand for GSL's is defined as the amount of money needy undergraduate students require to attend postsecondary educational institutions after taking into account the income of the student's family and all federal, state and institutional grants and loans.

This can be expressed in the following formula:

demand = tuition + living allowance -
expected family contribution - Pell Grants -
SEOG Grants - Work Study (CWS) -
National Direct Student Loans (NDSL) -
state grants (SSIG) - institutional aid

Needy students are those whose expected family contribution (EFC), what they or their family can afford to pay towards a college education, is less than the cost of attending the institution where they are enrolled.

Data from the U.S. Department of Education's Fiscal Operations Report and Application to Participate (FISAP) were used to examine GSL demand from 1979 to 1986. These data contain a variety of student financial aid information for every institution that receives institutional aid (SEOG, CWS, and NDSL) from the federal government. This leaves out many institutions that receive Pell and GSL only. These data will be augmented with data from the Education Department's Pell Grant Institutional Data File in the final version of this paper. However the institutions in the FISAP data set account for xxxxx% of Pells and an even larger percentage of GSL's. Generally those institutions that are not on the FISAP are very small.

Average tuition per undergraduate student was calculated by dividing total undergraduate tuition and fees by the total number of undergraduate students attending the institution. A standard living allowance, derived by the Department of Education, was added to this figure to obtain average cost per student.

The FISAP data also contain a matrix of aid applicants by income and dependency status. The American College Testing Service (ACT) has computed average EFCs for each income level by dependency status. For example, ACT calculated that the average family of a dependent student with \$6,000 - 8,999 of income could afford to contribute \$1,022 to their child's education for the 1985-86 school year.

The EFC's calculated by ACT were used to determine total need at each institution. The first step was to calculate the average need for each income

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and dependency category (each element of the matrix). This was obtained by subtracting the ACT-derived EFC for the category from the average cost per student for the institution. Need was set to zero (0) for those categories where average EFC was greater than the average cost per student. Step two was to multiply the average need for each category by the number of aid applicants in that category. This results in the total need for each category. These totals were summed to obtain total need for the institution.

The total number of needy students for any institution was derived by summing the number of aid applicants in all categories with an average need of $1 or greater.

Figures for Pell, SEOG, NDSL, CWS, and state aid were straightforward, coming directly from the FISAP data. CWS awards and NDSL loans going to graduate students were subtracted out.

Determining how much institutional aid went to needy students was more complicated. The data available on the FISAP tape for institutional aid are data on "maintainance of effort." This represents all institutional aid including that aid that went to non-needy students. Using data from various sources[1] percentages of total institutional aid going to needy students were calculated. Roughly 5%, 30%, and 50% of institutional financial aid goes to needy students in public 2-year institutions, public 4-year institutions, and private institutions, respectively. Proprietary institutions were assigned a 50% rate although there were no data to confirm that rate. Proprietary aid represents a very small percentage of all institutional aid.

Figure 1 shows the total figures for needy students from the FISAP data for 1978-79 and 1985-86. Data for 1979 are in 1986 dollars. Figure 2 shows these same figures on a per needy student basis. These data control for the 36% increase in needy students over the 1979-86 period.

The data show that the typical needy student now pays 12% more for his/her education in 1986 than in 1979. But these figures disguise the increase in tuitions. Total cost includes a standard living allowance calculated by the Department of Education that is adjusted annually for inflation. Actual tuitions went up 36% per needy student in the 1979-86 period. There was no significant change in the distribution of students among postsecondary institutions by the price of institution. Thus one cannot attribute the change in tuitions to more students attending higer priced institutions.

The EFC's of needy students increased at a greater rate than cost.

Pells were up 7% per needy student although private institutions saw

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[1] Department of Education's National Postsecondary Student Aid Study (NPSAS) Pilot Study Data, Charles Andersen's *Student Financial Aid to Full-Time Undergraduates, Fall 1984*, *the 1981-82 and 1983-84 Student Aid Recipient Surveys of the American* Association of State Colleges and Universities and the National Institute of Independent Colleges and Universities, and Irene Gomberg and Frank Atelsek's *The Institutional Share of Undergraduate Financial Assistance, 1976-77*.

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a 6% decrease in Pells per student. SEOG's and CWS were down 34% and NDSL's a whopping 48%.

Instituional aid was up 13% per needy student driven by the 46% increase in the private sector. State aid was down 11% per capita.

The typical needy student has to finance $2,208 with GSL or some other means. This is a $655 increase, in real dollars, over 1979.

Higher tuitions played by far the biggest role in this increase except in 2-year public instituions where tuition costs have only increase 14% above inflation.

Higher EFC's were by far the most important factor in holding down the demand for GSLs except in the private institutions where the 46% increase in institutional aid played an equally important role.

Type of Institution	Cost	EFC	Pell	Campus-Based	Institutional	State	NDSL	Students
1979								
2-Year Public	$2,513,715,454	$909,261,134	$440,790,573	$176,982,805	$17,987,897	$96,018,475	$37,984,723	549,493
4-Year Public	$6,466,003,183	$2,333,961,981	$1,038,954,581	$493,867,944	$638,302,933	$392,722,292	$373,087,716	1,241,000
Private	$6,411,597,295	$2,168,941,617	$653,102,298	$406,130,881	$843,350,156	$566,047,295	$333,222,867	790,345
Proprietary	$1,589,124,442	$408,645,650	$187,987,478	$36,221,997	$24,811,734	$23,755,898	$75,083,291	189,787
Total	$16,980,440,374	$5,820,810,382	$2,320,834,930	$1,113,203,627	$1,524,452,720	$1,078,543,960	$819,378,597	2,770,625
1985								
2-Year Public	$3,309,197,035	$1,344,714,528	$616,800,911	$142,355,887	$24,677,683	$122,350,473	$22,495,424	710,117
4-Year Public	$8,167,307,541	$3,121,722,133	$1,345,076,708	$397,412,502	$795,194,505	$443,215,796	$265,284,755	1,481,600
Private	$8,784,832,294	$3,065,430,067	$743,730,757	$410,853,467	$1,488,483,289	$664,061,122	$243,966,172	953,278
Proprietary	$5,667,840,147	$1,513,850,581	$655,483,177	$48,379,435	$22,111,166	$80,809,274	$45,001,026	618,277
Total	$25,929,177,017	$9,045,717,309	$3,361,091,553	$999,001,291	$2,330,466,643	$1,310,436,665	$576,747,377	3,763,272

FIGURE 1

Total FISAP Data By Type of Institution

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PRELIMINARY
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Type of Institution	Cost	EFC	Pell	Campus-Based	Institutional	State	NDSL
1979							
2-Year Public	$4,575	$1,655	$802	$322	$33	$175	$69
4-Year Public	$5,210	$1,881	$837	$398	$514	$316	$301
Private	$8,112	$2,744	$826	$514	$1,067	$716	$422
Proprietary	$8,373	$2,153	$991	$191	$131	$125	$396
Total	$6,129	$2,101	$838	$402	$550	$389	$296
1985							
2-Year Public	$4,660	$1,894	$869	$200	$35	$172	$32
4-Year Public	$5,512	$2,107	$908	$268	$537	$299	$179
Private	$9,215	$3,216	$780	$431	$1,561	$697	$256
Proprietary	$9,167	$2,448	$1,060	$78	$36	$131	$73
Total	$6,890	$2,404	$893	$265	$619	$348	$153

FIGURE 2

FISAP Data Per Needy Student

DRAFT
PRELIMINARY
DO NOT CITE

STUDENT DEBT IN TEXAS: SURVEY RESULTS AND POLICY IMPLICATIONS

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Student Indebtedness In Texas:
Survey Results and Policy Implications

EXECUTIVE SUMMARY

This report (1) discusses trends in financial aid policy and the theory behind these changing policies, (2) empirically describes patterns of student borrowing in Texas, and (3) considers the implications of such levels of debt in light of demographic and structural changes in the economy.

Student financial aid is one way that governments subsidize higher education. The role of government subsidization of post-secondary education is to ensure that public goods are provided in an equitable way when market failures occur. Higher education is a quasi-public good, in that, both society and the student receive benefits; as such, the cost is shared by both parties. The degree to which higher education is financed collectively is largely a political decision, and cannot be decided on scientific grounds. Current trends in financial aid policy reflect the position that benefits accrue primarily to the student, who, consequently, is expected to pay a greater percentage of the education. The effects of this policy are shown from the results of the survey of Texas borrowers.

The two populations consisted of: (1) 1986 graduates of twelve Texas undergraduate institutions (public and private) and (2) 1981 graduates of all programs (undergraduate, professional and graduate) at the University of Texas at Austin. Both student loan borrowers and non-borrowers were included. Sample populations of sizes 1540 and 1000 respectively were randomly chosen to be surveyed. The response rates for the populations were 44.5 percent and 41.5 percent, respectively. (Over one-half of the no responses were those with bad addresses.) Core information for both respondents and non-respondents was available to perform chi-square tests. The chi-square results revealed that for no significance difference existed between those that responded and those that did not.

The results were compared to recent research. The level of debt in Texas was comparable to that found in high tuition states such as Pennsylvania and New York, with a few interesting exceptions. A high percentage of Texas student borrowers have relatively high levels of student debt. Additional information was gathered concerning non-student debt. Important sub-populations within the Texas survey populations were analyzed. Even at the peak of federal emphasis on need-based grants, disadvantaged students relied relatively heavily on student loans.

Given demographic trends and structural changes in the economy, increasing student debt, both in Texas and nationally, is seen as especially detrimental to the health of the economy and Americans' ability to compete internationally. Disadvantaged populations will bear the initial hardships in the form of lower enrollment rates and heavier loan burdens.

STUDENT DEBT IN TEXAS:
SURVEY RESULTS AND POLICY IMPLICATIONS

Introduction

This report (1) discusses trends in financial aid policy and the theory behind these policies, (2) empirically describes patterns of student borrowing in Texas, and (3) considers the implications of such levels of debt in light of demographic and structural changes in the economy. To facilitate an examination of student debt, a survey was conducted of two populations: (1) 1986 graduates from undergraduate programs at twelve four-year senior educational institutions in Texas, and (2) 1981 graduates from all degree programs at the University of Texas at Austin. Other relevant empirical studies were also reviewed. The responses from a mailed questionnaire helped describe the implications of student debt, but in this area, too, a review of existing research proved valuable. The findings from these sources aided the analysis of existing programs and the development of reforms.

Certain economic theories or concepts have helped shape financial aid policy. A brief summary of these theories and of the policies they have influenced precedes the empirical description of student debt in Texas.

The Role of Government in Subsidizing Education

Higher education is subsidized through financial aid packages and through tuition breaks at state universities. Why do governments-- state, federal, and sometimes local communities-- subsidize post-secondary education? Economic theory offers suitable explanations for government involvement in higher education. Government has a role in subsidizing post-secondary education for three primary reasons: (1) to provide a public good where private markets fail, (2) to encourage investments in human capital by reducing the risk to the individual, and (3) to promote equity within our society.

Higher education is considered a public good. The collective provision of some goods can be accomplished more efficiently by governments or non-profit organizations than through profit motivated organizations. Public goods like a national defense or a standardized monetary system must be jointly consumed or used. The benefits and costs associated with these public goods do not accrue exclusively to a single person or group but to a community or to society as a whole. Market mechanisms are unable to establish an adequate system of incentives that would be necessary to provide public goods. "Free-riders" will take advantage of any private provider who singularly bears the burden of providing a public good. Without proper reward, the market for the public good fails. To insure that these goods enjoyed in common are produced, governments typically step in either to provide these goods or to contract with organizations which can provide them more efficiently and effectively. National defense and a standardized monetary system are clearly enjoyed in common. The public nature of other goods such as higher education is not as apparent. These public goods run the spectrum from small to large public benefit. The degree of public benefit provided by higher education cannot be determined scientifically, for it is a political question. The amount of government support for higher education will largely depend on the resolution of this question.

While debates concerning public goods center around questions of equity (who should pay how much), human capital theory focuses more directly on the higher education market imperfections. In aggregate, investments in human capital yield high returns. For the individual, however, the range of possible outcomes may be great. Luck can account for the level of return on any given individual education investment. Relative to the resources of the typical family, the investment required for higher education is very large; for poor families, the investment appears even larger. Unlike business equipment or real estate, education does not involve items which can be used as collateral. Uncertain payoffs, high stakes, and no collateral combine to make higher education prohibitively risky for an individual. Government can reduce this risk and encourage the development of human capital by spreading the costs of higher education throughout the general public.

In addition to promoting economic efficiency, the public sector also defends the value of equality in our society. To insure that higher education is accessible to all, regardless of race, sex, and income, government subsidizes post-secondary education primarily for disadvantaged persons who can least afford to make such a costly investment. The Johnson Administration was clearly motivated by a concern for equality when it successfully passed the Higher Education Act of 1965 which established the major financial aid programs that exist today. While a genuine concern for equity underlies federal financial aid policy, economic arguments further strengthen the justification for these programs. Improving the economic and educational condition of traditionally disadvantaged people was seen as one way to break out of the cycle of poverty, to allow these people to contribute more fully to society.

National Trends in Financial Aid

Student debt is soaring. Both in Texas and nationally, almost one-half of all full-time students leave college in debt. This debt is likely to be much higher than ever before. Three trends in financial aid policy have contributed to the increased size of educational debt: (1) rising tuitions, (2) decreased federal subsidies to students, and (3) the changing character of federal subsidies from grants to loans.

During the past seventeen years higher education tuition in the United States has increased at a rate of 7.8 percent, while the Consumer Price Index (CPI) has increased by only 6.7 percent. Within the past seven years the problem has increased. From 1980-81 to 1986-87, tuition climbed 9.8 percent while the CPI rose only 4.9 percent. The rise in tuition increased at about the same rate for both public and private universities, 9.8 percent and 9.9 percent respectively. In 1985, the Texas Legislature passed legislation increasing tuition at public universities. Resident tuition rose from $4 per semester hour, set in 1971, to $12, with annual increases to continue until 1995 ($24). Non-resident tuition was set at 100 percent of the cost of the education, but with waivers available for some students.

Concurrent with rising tuition, students have received proportionally less assistance from the federal government. As table 1 below shows, federal aid has declined in constant 1986 dollars from a high in 1980-81 of $18,380 million to $15,746 million estimated for 1985-86 for a 14 percent drop.

Table 1: Federal Aid Awarded to Post-secondary Students
In Constant 1986 Dollars (In Millions $)

Program Type	1970-71	1975-76	1980-81	Estimated 1985-86
Grants	5,008	13,154	8,495	4,958
College Work-Study	643	598	855	710
Loans	3,671	3,590	9,030	10,078
Total	9,322	17,342	18,380	15,746

Source: Gillespie and Carlson, Trends in Student Aid: 1963 to 1983, 1983; College Board, Trends in Student Aid: 1980 to 1986, 1986; Data for 1985-86 from various federal agencies; As found in Janet Hansen, Student Loans: Are They Overburdening a Generation? Joint Economic Committee of the U. S. Congress, December 1986, p.48.

Not only is federal financial aid declining, but the remaining aid is shifting from grants to loans. The decrease in federal aid has come primarily from grant programs which declined $3,537 million from 1980-81 to 1985-86. During this same period, loans increased $1,048 million in constant 1986 dollars. The balance between grants, loans, and work-study has undergone tremendous change during the past decade. Grants accounted for 75.9 percent of the total federal financial aid in 1975-76. In 1985-86, only 31.5 percent of total federal aid was in the form of grants. Loans have increased during this time from 20.7 percent in 1975-76 to 64.0 percent in 1985-86. During this period of rapid change the major federal loan program, Guaranteed Student Loan Program, moved from a minimally subsidized loan aimed at middle-income families to a more heavily subsidized loan for the needy. Middle-income families have fewer resources to aid them through the increasingly expensive college years while low-income families receive less grant money and must rely increasingly on loans.

Financial Aid Trends in Texas

State governments have promoted access to higher education through a combination of tuition breaks and financial aid programs. Texas has long maintained a popular, low tuition policy at its public universities. In a national ranking of states by average tuition and fees at the five largest public universities in each state, Texas ranked 43rd with an average cost of $741 for 1985-86. The method of higher education financing used in Texas gives only the state legislature the authority to change tuition rates. In only three other states are the institutions or the state overseeing agency not allowed to adjust tuition rates. As inflation soared in the mid-1970s, Texas kept tuition low and, in effect, subsidized higher education to a greater extent.

Another facet of tuition policy in Texas is the uniform level of tuition. The tuition charged to in-state students does not reflect either the quality of the program or the cost to the state to provide that program. For example, the amount of state expenditures per full-time student equivalent at the University of Texas at Austin ($5,530 in 1984) is much greater than the amount appropriated for the University of Texas of at El Paso ($3,008 in 1984), an institution within the same university system, but with a different implicit mission.[1] However, the same tuition is charged by both institutions. Students attending the more costly research oriented institutions, i.e., UT at Austin and Texas A & M University, receive greater subsidies from the state than students attending schools less well financed or acclaimed.

Because of low tuition, Texas policymakers felt little need to support large financial aid programs. No centrally administered state funded grant program exists for students attending public universities. The primary state grant program, the Tuition Equalization Grants (TEGs), directs money to private colleges to help reduce the difference in cost for residents of Texas between attending a private college and a public university. The schools receiving the greatest amount of aid through TEGs are Southern Methodist University and Baylor University. In 1985-86, the Texas Legislature allotted an average of only $30.80 of grant money per student, placing Texas 35th nationally. In contrast, New York appropriated over 13 times as much grant money per student ($408.90) as did Texas. The average tuition and fees at New York public colleges ($1,472) is almost twice as high as in Texas. For this reason the need for grant money in New York, at first glance, appears far greater than in Texas. Focusing solely on tuition and fees, however, misrepresents the cost of attending college and suggests that the cost to Texas students is less substantial than is the case. This misperception is widely held and can largely explain the contentment many supporters of higher education have towards the low level of need-based grant money in Texas.

A policy of equal educational opportunity that focuses on low tuition to the neglect of financial aid programs fails to consider the cost of room and board-- two factors which play prominent roles in calculating financial aid packages. When room and board is included in the average cost at public universities, Texas ranks much higher nationally. Using the five largest public universities in each state, the average total cost of education (tuition, fees, room and board) for Texas resident, non-commuters in 1985-86 was $4,040. Only 15 other states were more expensive places in which to attend a public college. With no state funded need-based grant program, many students attending public colleges in expensive cities like Austin and Dallas turned to student loans to allow them to get a post-secondary education. One hypothesis of this study was that Texas students have larger debt burdens when compared to students in other states due to the unavailability of adequate amounts of grant money.

Student Debt in Texas: Survey Results

The need for more thorough and reliable research specific to Texas is clear. To help remedy this problem, the Texas Guaranteed Student Loan Corporation commissioned a survey of recent graduates to help describe how students finance their education, focusing, in particular, on patterns of student borrowing. Two populations were surveyed: Texas residents who were either (1) 1981 Spring graduates from the University of Texas at Austin or (2) 1986 Spring graduates from one of twelve Texas four-year colleges. Both populations were mailed identical surveys and cover letters in late August and again in late September. 41.5 percent of the 1981 graduates surveyed responded to the questionnaire, while 44.6 percent of the 1986 graduates responded.*

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*Some studies exclude from the calculation of the response rate individuals whose addresses were incorrect or unknown. I chose not to exclude such cases from the calculation, because I hope to make generalizations about the "parent" population and not just about those with good addresses. For those interested, approximately one half of those not responding had unusable addresses.

The 1981 graduates included those from undergraduate, professional, and graduate programs at the University of Texas at Austin. Only graduates from undergraduate programs were included among the 1986 graduates population. The 1986 graduates population was meant to approximate the entire four-year college population. Both public and private schools were represented as were the various geographical regions in Texas.

Information pertaining to school attended, degree received, department major, and mailing address was available for both respondents and non-respondents in both sample populations. With this information, chi-square tests were made to detect the presence of bias in the population responding to the questionnaire. Using a two-tailed test (.05 level of significance), the null hypothesis "that no differences existed between the responding and non-responding populations" failed to be rejected. On the basis of information available for both populations, any differences between the two populations could have resulted randomly. Similarly, no significant differences were detected between those responding to the first and second mailings.

Operational Definitions

The survey instrument consisted of three sections. All respondents were asked to answer the questions in sections A and B; section C was reserved for those who had received an educational loan. The first section asked for information pertaining to characteristics of (1) the student (gender, age, race, marital status), (2) the educational experience (years attended, selection process), and (3) the method of financing (sources, parent's income, knowledge of financial aid programs). Parent's income represented the students' best estimate of their parents' combined income during the student's post-secondary education.

Graduates answering "Yes" to the following filter question were asked to continue to section B:

> Did you ever receive a loan from a bank, college, parents/relatives, etc., to meet the costs directly related to your education (tuition, fees, room, board, transportation, and personal expenses)?

This definition of student loan is broader than that used in most student aid research and was designed to capture information unavailable from program based data, such as loans from parents/relatives and credit card companies. The most useful information obtained from section B was the self-reported loan amounts from various sources. From this data, four important variables were created which report the amount of student debt from (1) Guaranteed Student Loans (GSLs), (2) federal student loans, (3) all program student loans, and (4) all student loans. The amount of GSLs represents the amount reported by the student. Federal student loans includes GSLs, National Direct Student Loans (NDSLs), Health Education Assistance Loans (HEALs), and Health Professions Student Loans (HPSLs). All program student loans combine the amount of federal student loans, loans from private religious and civic organizations, and state program loans. All student loans refers to both program loans and loans from parents and/or relatives.

Section C produced the student's employment status, income, and amount of non-educational loans. The student's income includes the student's spouse, when applicable, and was divided into seven increments. Non-educational debt was obtained by simply asking the student, "Excluding student loans, what is the approximate amount of your indebtedness?" By combining some of the responses in Section B with some from Section C, two variables were created: (1) cumulative program debt, which is the sum of program debt and non-student loan debt and (2) total debt, which derives from the summation of all student debt (including loans from parents) and non-student debt.

Texas Student Debt Compared To Other States

Studies by Guaranteed Student Loan agencies from Pennsylvania and New York allow the results of this survey of Texas students to be compared with other states. In contrast to Texas, the state governments of Pennsylvania and New York have adopted policies of charging high tuition at public universities coupled with substantial state financial aid programs. Tuition and fees in these states are approximately twice as high as in Texas. Given the large expense of attending public universities in Pennsylvania and New York, student debt in these states would be expected to be much higher than in Texas. Actually, student debt follows somewhat comparable patterns in all three states with a few surprising exceptions. For 1980-81, the cumulative GSL debt of Pennsylvania undergraduate seniors is compared in table 2 to the total GSL debt held by 1981 undergraduate graduates of the University of Texas at Austin. Borrowing by 1985-86 undergraduate seniors in New York is compared to 1986 graduates from twelve Texas colleges. Given the differences in the populations and how the information was gathered, caution is advised when comparing these populations.

The size of student debt in Pennsylvania and the University of Texas at Austin appear to follow similar patterns, but with larger percentages of UT graduates with very large debt burdens. While only 2.9 percent of Pennsylvania

Table 2: Cumulative GSL Debt Of Undergraduate Seniors In Pennsylvania, New York, And Texas*, 1980-81 And 1985-86

Amount	PA 1980-81	UT Austin 1980-81	NY 1985-86	TX 1985-86
Less than $ 2,500	31.7%	33.6%	10.5%	39.2%
$2,501-5,000	35.0%	29.9%	18.3%	26.1%
$5,001-7,500	30.4%	17.2%	21.6%	13.6%
$7,501-10,000	2.9%	6.0%	38.8%	11.9%
$10,001-12,500	N/A	3.0%	10.8%	3.4%
$12,501-+	N/A	10.4%	N/A	5.7%

* 1980-81 figures reflect self-reported GSL debt of graduates from the University of Texas at Austin undergraduate program; 1985-86 figures reflect the same for graduates from twelve Texas Universities.

** N/A = Not Applicable

Other Sources: Jerry S. Davis, "Growing by Leaps and Bounds," Pennsylvania Higher Education Assistance Authority, November, 1985; unpublished data from New York State Higher Education Services Corporation; as cited in Janet S. Hansen, Student Loans: Are They Overburdening a Generation? College Board, Washington, D.C., December, 1986, p. 13.

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borrowers had accumulated debts of over $7,501, 19.4 percent of UT graduates incurred debt over this amount. As would be expected with the differences in tuition policies, in 1985-86 average total debt burdens in New York were higher than in Texas. However, the percentage of borrowers with debt burdens of $10,001 and over in Texas and New York was approximately equal: 10.8 percent of New York borrowers and 9.1 percent of Texas borrowers received total GSLs of $10,001 and over. These comparisons suggest that student debt in Texas is roughly comparable to debt in high tuition states and that relatively large numbers of Texas students incur very high levels of student debt.

The College Scholarship Service (CSS) and the National Association of Student Financial Aid Administrators conducted a survey of undergraduate financial aid policies which provides insight into national student debt levels.[2] Table 3 compares student debt in Texas with national percentages as reported in the CSS/NASFAA study.

As in the Pennsylvania and New York studies, national comparisons show student debt in Texas to be more polarized between the extreme low and high percentages of debt. Nationally, student debt tends to be more normally distributed, with fewer students at each extreme and the largest percentages hovering around the center. In Texas, the percentages of student borrowers appear more spread out along the spectrum of debt levels. Table 4 divides debt levels into three divisions consisting of three categories. By collapsing the information from table 3, the different patterns of student borrowing between Texas and the nation become more obvious. Table 4 shows that the 1986 Texas survey population would be divided into three segments of virtually equal size, in contrast to the rest of the nation where the number of students borrowing clusters around a certain amount of debt.

In analyzing the data from the survey it became apparent that debt burdens

Table 3: Average Debt From All Sources* At The End Of Four Years, As Reported By Financial Aid Officers** And The TGSLC Survey Of 1986 Graduates

Debt After 4 Years	Public 4-Year Instit.	1986 TX Univ.Grad.	Private 4-Year Instit.
Under $1,000	0%	13.6%	0.4%
$1,000-1,999	1.5%	5.5%	0.5%
$2,000-2,999	5.1%	16.9%	1.5%
$3,000-3,999	7.8%	8.1%	2.2%
$4,000-4,999	20.4%	4.7%	6.8%
$5,000-7,499	31.8%	22.0%	19.3%
$7,500-9,999	22.8%	10.6%	38.7%
$10,000-14,999	9.0%	14.0%	27.3%
Over $15,000	1.2%	4.7%	2.6%
Not Applicable	0.3%	N/A	0.7%

* Includes all program student loans (excludes loans from parents, relatives and friends).

** College Scholarship Service and National Association of Student Financial Aid Administrators, Survey of Undergraduate Financial Aid Policies, Practices and Procedures, forthcoming, as found in Janet S. Hansen, Student Loans: Are They Overburdening A Generation?, College Board, Washington, D.C., December, 1986, p. 16.

*** N/A = Not Applicable

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fluxuate greatly from the mean, producing very high standard deviations for both populations and for most sub-populations. Reporting data by quartiles supplements mean statistics in showing this polarization. The following tables (5 and 6) report the mean and quartiles for students in both populations receiving student loans.

Table 4: Average Debt From All Sources* At The End Of Four Years, As Reported By Financial Aid Officers** And The TGSLC Survey Of 1986 Graduates

Debt After 4 Years	Public 4-Year Instit.	1986 TX U.Grad.	Private 4-Year Instit.
Under $3,000	6.6%	36.0%	2.4%
$3,000-7,499	60.0%	34.8%	28.3%
Over $7,500	33.0%	29.2%	68.6%
Not Applicable	0.3%	N/A	0.7%

* Includes all program student loans (excludes loans from parents, relatives, and friends).

** College Scholarship Service and National Association of Student Financial Aid Administrators, Survey of Undergraduate Financial Aid Policies, Practices and Procedures, forthcoming, as found in Janet S. Hansen, Student Loans: Are They Overburdening A Generation?, College Board, Washington, D.C., December, 1986, p. 16.

*** N/A = Not Applicable

The most marked difference between the two populations is the much larger non-educational debt among 1981 graduates. This finding probably reflects an increase in the number of home mortgages as these adults begin to settle down.

Breaking down the data from the survey into sub-populations enhances the description of student borrowing in Texas. Given the much lower earning prospects of women, reports have pointed with alarm to the relatively identical borrowing patterns of men and women.[3] Given this concern, it was important to look at borrowing patterns of Texas students by gender. For both 1981 and 1986 survey populations, females borrowed at rates lower than males in all categories of

Table 5: Mean Debt Levels And Percentiles For 1981 Graduates* From The University Of Texas At Austin

Type Of Debt	Mean	25 %-tile	50 %-tile	75 %-tile	(n)**
GSL	$ 5,742	$ 2,500	$ 4,700	$ 7,500	144
Federal Student Loans	$ 6,249	$ 2,500	$ 5,000	$ 7,500	172
All Program Student Loans	$ 6,691	$ 2,500	$ 5,000	$ 8,875	190
All Student Loans#	$ 7,596	$ 2,850	$ 5,000	$ 8,875	216
Non-Student Loans	$60,285	$ 6,000	$40,000	$90,000	162
All Program Student Loans & Non-Student Loans	$60,656	$ 9,000	$29,000	$86,375	178
All Student Loans# & Non-Student Loans	$61,289	$10,000	$30,000	$87,250	181

* Includes graduates from undergraduate, professional, and graduate programs.

** (n) = the number of observed cases.

# Includes loans from parents, relatives, or friends to students for educational purposes.

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debt. The amount of total debt for 1981 women graduates of UT at Austin was almost $18,000 per student loan borrower lower than for their male counterparts. Quartile figures show the same pattern of lower debt burdens among females, but with a few additional caveats. For program student loans, female graduates in 1981 have higher first and third quartile debt levels than men, who on average

Table 6: Mean Debt Levels And Percentiles For 1986 Graduates* From Twelve Texas Universities

Type Of Debt	Mean	25 %-tile	50 %-tile	75 %-tile	(n)**
GSL	$ 5,374	$ 2,500	$ 4,500	$ 7,500	176
Federal Student Loans	$ 5,496	$ 2,500	$ 4,800	$ 7,500	198
All Program Student Loans	$ 5,712	$ 2,500	$ 5,000	$ 8,000	236
All Student Loans#	$ 7,606	$ 2,500	$ 5,700	$10,000	271
Non-Student Loans	$ 9,129	$ 1,450	$ 3,750	$10,000	171
All Program Student Loans & Non-Student Loans	$11,768	$ 3,277	$ 7,544	$13,350	262
All Student Loans# & Non-Student Loans	$13,786	$ 4,500	$ 9,500	$17,300	271

* Includes graduates from undergraduate programs only.

** (n) = the number of observed cases.

# Includes loans from parents, relatives, or friends to students for educational purposes.

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have higher program student debt. For all student loans, 1981 male graduates of UT at Austin have the same first quartile and median as do women graduates, but have a much higher third quartile, suggesting that a few men report relatively large loans from parents/relatives which significantly increases the mean. 1981 female graduates report much smaller non-educational debt than do men. While women borrow less than men, the difference in the amount of debt between men and women is less pronounced by 1986.

Another area of concern to student aid policymakers is the pattern of minority borrowing. Has the federal shift from an emphasis on grants to loans influenced minority student borrowing? Some have argued that minority students are more reluctant than Whites to take loans. One thread of this argument focuses on the low income status of many minorities. On average, having fewer resources with which to pay back loans, minority students and their families are less willing than Whites to borrow. Further, given the high rates of unemployment among minorities and low levels of income, minority students are less optimistic than Whites about their future earning power and believe the educational investment too risky. Another aspect of this argument focuses on the lack of experience and familarity with loans and banking procedures. Intimidated by or less familiar with the loan process, the argument goes, minorities seldom, and then only reluctantly, enter into debt.

An analysis of the mean and quartiles debt levels for Texas students is not able to adequately substantiate or reject these claims. Looking at the 1981 survey population (table 8), minorities do borrow less heavily than their White counterparts for all loan categories. An analysis of data for 1986 graduates (table 7) shows, however, that minorities borrow more heavily than Whites. This changing pattern of borrowing, perhaps, reflects the changes in federal financial aid policy which reduced appropriations for grant programs and increased student dependence on student loans. The 1981 population received most of their loans during the peak years of federal spending for student grant programs, while the

Table 7: Mean Debt Levels By Ethnic Group For 1986 Graduates* From Twelve Texas Universities

Type Of Debt	White	Hispanic & Black	Total**
GSL	$ 5,536	$ 4,867	$ 5,374
Federal Student Loans	$ 5,611	$ 5,192	$ 5,496
All Program Student Loans	$ 5,674	$ 6,430	$ 5,712
All Student Loans#	$ 7,710	$ 7,735	$ 7,606
Non-Student Loans	$ 8,722	$ 9,722	$ 9,129
All Program Student Loans & Non-Student Loans	$11,493	$12,497	$11,768
All Student Loans# & Non-Student Loans	$13,658	$13,994	$13,786

* Includes graduates from undergraduate programs only.

** Total includes Whites, Hispanics, Blacks, Asians, and others.

# Includes loans from parents, relatives, or friends to students for educational purposes.

1986 population borrowed during the period of declining federal expenditures for student financial aid.

The effects of the changing character of federal financial aid policy can also be seen by examining the debt patterns of Texas graduates by level of parental and personal income. For the 1981 survey population (table 9), borrowing from

Table 8: Mean Debt Levels By Ethnic Group For 1981 Graduates* From The University Of Texas At Austin

Type Of Debt	White	Hispanic & Black	Total**
GSL	$ 5,761	$ 4,071	$ 5,742
Federal Student Loans	$ 6,252	$ 5,300	$ 6,249
All Program Student Loans	$ 6,721	$ 5,564	$ 6,691
All Student Loans#	$ 7,549	$ 6,564	$ 7,596
Non-Student Loans	$61,239	$41,125	$60,285
All Program Student Loans & Non-Student Loans	$61,434	$43,133	$60,656
All Student Loans# & Non-Student Loans	$61,897	$44,356	$61,289

* Includes graduates from undergraduate, professional, and graduate programs.

** Total includes Whites, Hispanics, Blacks, Asians, and others.

# Includes loans from parents, relatives, or friends to students for educational purposes.

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federal student loan programs was most extensive among students whose parents made $40,000 and over. This reflects the federal policy in the late 1970s that directed student loans towards middle-income families, while reserving grants for the most needy. Surprisingly, students whose parents earned less than $25,000 borrowed more extensively from federal loan programs than students whose parents

Table 9: Debt Levels By Parent's Combined Income For 1981 Graduates* From The University Of Texas At Austin By Means

Type Of Debt	less than $24,999**	$25,000 to $39,999	$40,000 to $54,999	$55,000 plus
GSL	$ 5,020	$ 4,608	$ 6,202	$ 6,214
Federal Student Loans	$ 6,107	$ 5,309	$ 6,404	$ 6,661
All Program Student Loans	$ 7,115	$ 5,406	$ 6,330	$ 6,817
All Student Loans#	$ 7.766	$ 5,827	$ 8,149	$ 8,509
Non-Student Loans	$63,217	$53,117	$65,291	$59,132
All Program Student Loans & Non-Student Loans	$68,615	$52,068	$63,218	$62,143
All Student Loans# & Non-Student Loans	$67,661	$52,859	$64,074	$63,625

* Includes graduates from undergraduate, professional, and graduate programs.

# Includes loans from parents, relatives, or friends to students for educational purposes.

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made between $25,000 and $40,000 annually. Further, the students whose parents' incomes were the lowest borrowed more heavily from all program loans than any other income group, relying, perhaps, on loans from religious or civic organizations. Nonetheless, by 1986 students from the lowest income families accumulated the

Table 10: Debt Levels By Parent's Combined Income For 1986 Graduates* From Twelve Texas Universities By Means

Type Of Debt	less than $24,999**	$25,000 to $39,999	$40,000 to $54,999	$55,000 plus
GSL	$ 7,253	$ 4,744	$ 4,823	$ 3,999
Federal Student Loans	$ 6,988	$ 5,210	$ 4,924	$ 4,019
All Program Student Loans	$ 7,013	$ 5,444	$ 5,092	$ 4,180
All Student Loans#	$ 8,006	$ 8,547	$ 7,107	$ 7,278
Non-Student Loans	$12,725	$ 7,698	$ 6,867	$ 4,946
All Program Student Loans & Non-Student Loans	$15,405	$10,248	$ 9,560	$ 7,527
All Student Loans# & Non-Student Loans	$16,219	$13,902	$11,973	$10,836

* Includes graduates from undergraduate programs only.

# Includes loans from parents, relatives, or friends to students for educational purposes.

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largest average debt for each category of loans (table 10). Not only were the poorest students incurring large educational debt, but they also were borrowing more heavily than all other students for non-educational purposes. Perhaps these students could not depend on their parents -- as could graduates from wealthier families -- for assistance in purchasing automobiles or other expensive items.

Evidence from this survey indicates that low income students will, in fact, incur heavy debt, however reluctantly.

Six years after graduation, the 1981 graduates with the largest average student debt tended to make less money annually than graduates with smaller average student debt (table 11), thus making the loans especially difficult to repay. The average cumulative student loan from programs was $10,177 for graduates making less than $20,000, compared to an average program student debt of $ 6,202 for 1981 graduates making over $50,000 annually. The larger student loan burden seems to have limited non-educational borrowing after graduation, with the graduates from the lowest income group (and those with the largest average student loans) borrowing considerably less than student loan borrowers with higher annual income. 1986 graduates who made between $20,000 and $30,000 have the largest average student loan debt. Graduates within the lowest income group have relatively low or moderate levels of student loan debt for the four student loan categories.

Summary of Results

No typical Texas borrower exists. Relatively large percentages of Texas student borrowers have cumulative debt burdens that are small . . . and large. This polarization by level of student debt makes Texas unique. Focusing on potential problems, relatively large numbers of Texas student borrowers are accumulating debt burdens that are large by any measurement.

Women continue to rely less on student loans than men. Looking beyond average debt, the differences in borrowing by gender appear less pronounced. 1986

Table 11: Debt Levels By Student's Income For 1981 Graduates* From The University Of Texas At Austin By Means

Type Of Debt	less than $20.000**	$20,000 to $29,999	$30.000 to $39.999	$40,000 to $49.999	$50,000 plus
GSL	$ 7,396	$ 3,498	$ 7,784	$ 5,104	$ 5,153
Federal Student Loans	$ 8,993	$ 4,441	$ 7,006	$ 5,250	$ 5,820
All Program Student Loans	$10.177	$ 4,628	$ 7,140	$ 5,579	$ 6,202
All Student Loans#	$11.282	$ 6,160	$ 7,837	$ 6,713	$ 6,742
Non-Student Loans	$11,179	$27,704	$41,625	$46,382	$112,409
All Program Student Loans & Non-Student Loans	$19,355	$28,365	$41,098	$48,958	$113,430
All Student Loans# & Non-Student Loans	$21,817	$28,938	$43,633	$48,608	$112,838

* Includes graduates from undergraduate, professional, and graduate programs.

**Student's income includes that spouse's income when applicable.

# Includes loans from parents, relatives, or friends to students for educational purposes.

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women graduates enter into debt in ways more similar to men than did 1981 women graduates.

For both minority and low-income populations, the effect of federal financial aid policy has changed borrowing patterns. Minority and low-income graduates in 1986 borrowed more heavily than similar categories did in 1981. The declining amount of federal grant money has forced these disadvantaged populations into larger total debt. It should be noted, however, that even at the peak of federal emphasis on need-based grants, disadvantaged students relied relatively heavily on student loans.

Demographic Trends In Education

Trends in the state's demographic composition and the changing character of the national economy have pronounced implications for financial aid policy. In particular, these changes accentuate the problems concerning increasing student loan burdens, especially for those populations less able to bear heavy debt and most in need of encouragement to enroll in post-secondary education. Failure to provide equal access to higher education may cause severe resentment among the fastest growing segment of the population and could retard an economy which relies on the productivity of talented minds regardless of sex, income, or ethnic origin.

63 percent of the 1985 population in Texas were Whites, 22.7 percent were Hispanics, 12.5 percent were Black, and 1.7 percent were from other ethnic groups.[4] Some demographers predict that by the year 2015, with only moderate immigration, no ethnic group in Texas will be able to claim majority status. Ray Marshall and Leon Bouvier project that in the year 2025 Whites will comprise 46.3 percent of the total population in Texas while Hispanics and Blacks will account for 36.8 percent and 11.3 percent respectively.[5] Minority population growth will be most

dramatic at the school age level where Hispanics now comprise 29.7 percent and Blacks 13.5 percent of the age 1 to 14 population. This growth will likely be swiftest among Hispanics due to high fertility rates and rising legal and illegal immigration. As a whole, Texas will become more ethnically mixed and, if historical inequities persist, educationally weaker.

Receiving a superior education has been extremely difficult for Hispanics and Blacks in Texas; even an adequate education appears illusory. At every level of education, by virtually every measurement, Whites out perform minority students. Entrance into post-secondary education is especially difficult for minorities in Texas. Texas is currently under federal Title VI Civil Rights Compliance Plan to desegregate its public universities, but will not meet the time schedule set out in the Texas Equal Educational Opportunity Plan to comply with the ruling.[6]

Economic Trends and Implications for Education

Given that (1) minorities will comprise increasingly larger percentages of the Texas workforce, and (2) that traditionally in Texas, minorities have lower levels of education and training than Whites, then it follows that the overall skill level of the Texas labor market will decrease unless education for minorities substantially improves. This weakening will occur at a time when the economy demands more sophisticated workers, especially in the areas of technology, medicine, and teaching. Major changes in the economy continue to influence the demand for more analytical and creative workers. Perhaps the most influential economic trend is the increased internationalization of the economy.[7]

American workers must now compete with workers world-wide. American workers can compete by working longer hours for less money. This strategy would place workers in direct competition with, for example, Korean workers:

> At a modern factory outside Seoul, Korean workers produce home video recorders sold under many brand names in the American market. They work seven days a week (with two days off a year), twelve hours a day. They earn $3,000 a year. Though the American market for home video recorders is big, profitable and growing, none of the machines sold here is produced in the US. We cannot, nor wish to, compete with these Korean workers on their own terms.[8]

Clearly, direct competition with Second and Third World workers on a wage basis must be avoided. The two remaining options are to rely on advanced technology and a smarter, more flexible workforce. Post-secondary education plays a vital role in developing these options and should be supported more than ever.

As mentioned earlier, two major purposes for financial aid are to promote equal opportunity and to encourage investments in human capital. Given demographic trends and changes in the economy, the need to educate disadvantaged students at a post-secondary level is more imperative than ever. Financial aid policy should respond to these needs by offering larger grants to disadvantaged students. The Texas legislature should reexamine its financial aid system to ensure that it is in coordination with efforts to improve the educational opportunities for all Texans.

Notes

[1] Legislative Budget Board Report, as cited in Joe McCormick, Quality and Access: A Shared Responsibility, Report to the Task Force on Quality and Access of the Select Committee on Higher Education, October, 1986, appendix.

[2] College Scholarship Service and National Association of Student Financial Aid Administrators, Survey of Undergraduate Financial Aid Policies, Practices and Procedures, forthcoming, as found in Janet S. Hansen, Student Loans: Are They Overburdening A Generation?, College Board, Washington, D.C., December, 1986, p. 16.

[3] Joseph D. Boyd and Dennis J. Martin, The Characteristics of GSL Borrowers and the Impact of Educational Debt, Vol 1, National Association of Student Financial Aid Administrators, Washington, D.C., 1985. Also, Janet S. Hansen, Student Loans: Are They Overburdening a Generation?, Joint Economic Committee of the U.S. Congress, December, 1986, p.53.

[4] Ray Marshall and Leon Bouvier, Texas: Past Present and Future, working paper, January, 1987, chapter 3, p. 2.

[5] Ray Marshall and Leon Bouvier, Texas: Past Present and Future, working paper, January, 1987, "Demographic Trends In Texas," p. 2.

[6] Governor Mark White, Texas Equal Educational Opportunity Plan for Higher Education, June 15, 1981, as amended through May 16, 1983, approved by the Office of Civil Rights of the U.S. Department of Education on June 14, 1983; Gerald Wright, Director of Equal Educational Opportunity Planning, "Presentation to the Members of the Coordinating Board," April 23-24, 1987.

[7] Ralph C. Bryant and Lawrence B. Krause, "World Economic Interdependence," from Joseph Pechman, Setting National Priorities: Agenda for the 1980s, pp. 71-79.

[8] Carnegie Foundation Task Force on the Teaching Profession, A Nation Prepared: Teachers For the 21st Century, Carnegie Forum on Education and the Economy, May, 1986, p. 12.

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